AMERICAN NURSERYMAN

The Nurseryman's Forte: To Make America More Beautiful and Fruitful

DECEMBER 15, 1951



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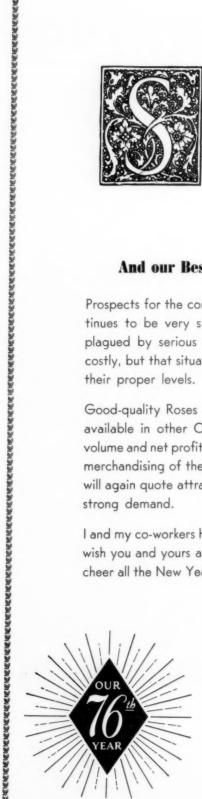
And our Best Wishes for another prosperous year.

Prospects for the coming year are again very bright. Retail demand continues to be very strong at favorable prices, and our industry is not plagued by serious surpluses. Operating continues to be difficult and costly, but that situation can be handled when demand and prices are at their proper levels.

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I and my co-workers here at Mount Arbor thank you for your business and wish you and yours a Happy Christmas and the best of health and good cheer all the New Year.

George L. Welch, Vice-president



Mount Arbor Nurseries

Shenandoah, Iowa

of America's Foremost Nurseries"

Since 1875

AMERICAN NURSERYMAN

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The Nurseryman's Forte: To Make America More Beautiful and Fruitful

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YMAN

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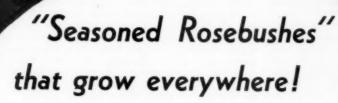
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Forms for the January 1 issue will close Monday, December 17.

Forms for the January 15 issue will close Monday, December 31.

Mail copy to arrive at Chicago by these dates—no later!

YMAN



If we had a choice of locations anywhere in the United States where we could locate our rose farm, we would select our present mountain valley site at Hemet, California. Our extremely rich soil conditions, ample irrigation facilities, plus a growing season that is hot, make rosebushes thrive under the desert sun. However, the winters are cold. This temperature change is actually a test of the hardiness of the bush. We call them "Seasoned Rosebushes," your assurance that they will grow everywhere!

Even though all our bushes are allocated to old customers this coming year, drop us a note. We would like to put your name on our mailing list for special literature.

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PATENTED AND NON-PATENTED ROSEBUSHES FOR THE WHOLESALE TRADE HOWARD ROSE COMPANY . BOX 725 . HEMET . CALIFORNIA

AMERICAN NURSERYMAN

F. R. KILNER, Editor and Publisher Joan L. Kilner, Assistant Editor

Editorial

MERRY CHRISTMAS!

Approach of the holiday season customarily brings reflection on the year that is passing. Much that was feared has not come to pass, and some of the developments of recent months are auspicious of a more settled atmosphere in this country and in the world at large.

While the misfortunes of weather have taken their toll of nurserymen in some sections, generally their business has been quite favorable, and the order books are still full. No letup is in sight in the demand for nursery stock while home building continues at a high rate, and the problems are those of production and distribution. Some other lines of business have neither fared so well nor face such an outlook. So nurserymen have good reason to partake of the holiday spirit of rejoicing and thankfulness.

The continued advance of this magazine reflects not only the progress of the industry as a whole, but the increased cooperation and interest of its readers. To them all, the staff of the American Nurseryman offers the best wishes for a Merry Christmas!

SUPPLY STILL PROBLEM.

The sudden freeze that came early in November interrupted the busiest autumn which landscape nurserymen, and the growers supplying them, have had in years. So strong is the demand for stock to plant about the new homes being built everywhere that digging was resumed as soon as milder weather permitted operations. These continued, as did landscape planting, into December wherever possible.

cember wherever possible.

The increased cost to wholesale nurserymen of getting out stock for their customers was at once obvious. The difficult conditions, the lost time and the extra labor involved all added to costs and reduced profits. In some sections where frozen ground was not a problem, the high water level following the record rains of the preceding months made digging equally difficult and costly.

Most planting had been done in the fields, but where it had been postponed, the opportunity to com-

The Mirror of the Trade

plete it was gone. For another season, it seems, stock of most items will not be too plentiful, the increased demand taking care of any attempted augmentation of supply.

SEE SMALL INFLATION.

In contrast with some of the scare warnings that have come from policy makers among government officials at Washington, economists in federal bureaus look for only slight, mild or moderate inflation in the next twelve months, according to a survey recently reported by the New York Journal of Commerce. One



pessimistic view was that the consumer price index of the bureau of labor statistics might rise more than three per cent in the next year, but the other analysts agreed that the rise would be less than that figure. Wholesale prices may increase somewhat more, climbing about five per cent.

Soft goods have lost ground in respect to prices in the past few months, although the scarcity of hard goods keeps demand relatively strong in relation to supply.

The consumer is the biggest question mark in the picture, and psychology, rather than economics, will supply the answer to the question as to what buyers will do. The public has amassed huge savings, and the present thrift record is unsurpassed. Sensing the soft condition of the market generally, the public has been restrained in its purchasing, in contrast to the scare buying that took place when the war started in Korea and when shortages were predicted as a result of rearmament plans a year ago.

One influence on inflation is costs

of production and distribution. As these rise, manufacturers and distributors have no alternative but to increase their prices if they are to stay in business. A short labor market and wage increases enhance this factor.

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STILL MORE HOMES NEEDED

"A million new homes will be needed in 1952 and as far ahead as we can foresee," asserts William P. Atkinson, president of the National Association of Home Builders. He says the association will try to get building and plumbing codes changed so that alternate materials can be used in place of critically scarce items, such as copper, and thus eliminate supply bottlenecks. If this is the case, nurserymen will have ample business ahead for the foreseeable future.

FORECAST LESS BUILDING.

Fewer and smaller houses will be erected in this country in 1952, according to a forecast of the building industry for the coming year made by the F. W. Dodge Corp. Building costs, it is estimated, will rise moderately during the year.

Total dwelling units to be started in 1952 are estimated at a probable 850,000, which until recently was rated as a high volume in the building industry. This would be a decline of about nineteen per cent from 1951, however.

Nonessential commercial construction has been reduced through the disapproval by the national production authority of two-thirds of the applications submitted by builders for permission to begin work on such projects. Only those were approved which involved minimum quantities of controlled metals, including steel, copper and aluminum.

In connection with the forecast of home building, the Dodge statement predicted a definite uptrend of contract volume in the second half of 1952 if the anticipated improvement in the metals situation takes place, with consequent easing of controls.

Since the million or more homes started in 1951 are keeping the order books of landscape nurserymen filled for the months ahead, the moderate decline of residential building in 1952 presages no early decrease in the demand for nursery stock.

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Minnesota Association Honors Pioneers

Mild weather, permitting the digging of nursery stock field-bound by rains or freezing weather, reduced rather than benefited the attendance at the annual meeting of the Minnesota State Nurserymen's Association, December 3 and 4. Sessions at the Hotel Lowry, St. Paul, varied from three score to four score in attendance, the banquet drawing a few over 100. At the banquet the association honored three of its earliest leaders by the presentation of plaques in their memory to their sons, with fittingly impressive remarks by Bj. Loss.

Following the practice of second terms, the association reelected Harold S. Reid, of Holm & Olson, Inc., St. Paul, president; W. A. Coupanger, Elmore Nursery, Elmore, vicepresident, and R. N. Ruedlinger, Ruedlinger Nursery Co., Minneapolis, secretary-treasurer.

Reelected also, on recommendation of the nominating committee headed by Ken Law, were the two members of the executive committee whose terms expired, Gordon Bailey, J. V. Bailey Nurseries, St. Paul, and Melvin Bergeson, Bergeson Nursery, Fertile.

Favor A. A. N. Convention.

At a luncheon meeting of A. A. N. members December 4, the proposal was reaffirmed to invite the national convention to the Twin cities for 1954.

W. A. Coupanger reported the results of some investigation of the facilities for handling so large a convention and asked for a frank expression of members' willingness to undertake the work of arranging for the convention. All seemed in agreement as to the comparative advantages of the Twin cities, and a raising of hands indicated a disposition to assume the burden of hosts.

W. A. Coupanger was elected a delegate to the A. A. N. board of governors, and Russell Zakariason, Homedale Nursery, Hopkins, was chosen alternate. R. N. Ruedlinger is holdover delegate, and Vincent Bailey, alternate.

Opening Session.

The opening session, Monday afternoon, December 3, followed luncheon attended by seventy-six persons. President Harold Reid, in a short official message, paid tribute to the pioneer members of the association and the stalwarts who had contributed to its recent success.

In a lengthy address on "Trends in Radical Thinking in our Government," State Senator Fay Childs, newspaper editor and publisher, Maynard, detailed the efforts to head this country on the road to socialism and collectivism. He named those charged as most active in the planning and propaganda in that direction. He urged his audience to be awake to the communist influences undermining this country's institutions and to take active part in the task of retaining the form of government which had brought greatness and strength to the nation.

"Perennials for the Northwest" was the subject of an instructive paper by C. A. Mathes, for many years with Holm & Olson, Inc., St. Paul, and now manager of the firm's nursery and landscape department. This informative treatment of the topic is published in full on another page of this issue.

Department Store Methods.

"Conducting a Nursery Sales Lot" was discussed in an informal, question-and-answer style by Lester B. Johnson, of L. S. Donaldson Co., Minneapolis department store.

First he displayed charts to show how his department kept records on sales of different types of nursery stock, with notations to explain undue influences by mistakes, weather, etc. Each category is then broken down to species of plants. From these records are projected figures of anticipated sales volume ahead.

Then he showed how the promotional highlights of each item to be featured are briefly outlined, for advertising copy, salespersons' instructions, etc. These promotional features must be definite points, not generalizations.

Effort is made to push a leader that is different from the general run of offerings if possible.

Chrysanthemums are sold by color, not by name, to avoid mistakes; loss of sale if the firm is out of a variety a customer names, and difficulty of maintaining stock. Named varieties are the province of the specialist. The department store is seeking sales volume.

Competition by the department head is considered the rivalry with other departments of the store—not other stores or nurserymen.

Sales are planned by month and by day, to arrive at the number of salespersons needed, supplies, etc. Costs of stock, selling, advertising, rent, delivery, etc., are charted so as to show an anticipated controlled profit. Advertising amounts to five and one-half to six per cent of gross sales; about two-thirds is newspaper advertising.

Emphasis is placed on the promotion of items on which there is a long markup. No advertising is done of garden supplies and equipment, as the markup is too limited.

Mr. Johnson said handling nursery stock in the department store was not so profitable as in a salesyard operated by the department store, as the salesyard made possible a cash-and-carry business.

Mimeographed sheets of planting instructions carry sales offers, such as of gladiolus bulbs, on the reverse side and produce much business. Printed pamphlets were considered too detailed for the department store's customers and lacked this sales-making value.

The revelation of the painstaking, scientific approach to selling nursery stock was an eye opener.

Banquet.

Feature of the banquet, Monday evening, was the presentation of three plaques honoring the memory of departed leaders of the association to their sons, accompanied by inspiring remarks by Bj. Loss. He told of the service of J. V. Beiley, first president of the association; of C. N. Ruedlinger, an early president and long its secretary, and State Senator Thomas E. Cashman, a needed tower of strength in the legislature in earlier days. The plaques were received respectively by Vincent and Gordon Bailey, Arthur and R. N. Ruedlinger and Terrence Cashman.

Ken Law, acting as toastmaster, called on the association's guest of the evening, Congressman August H. Andresen, who spoke briefly on the efforts to curtail government extravagance, largely unsuccessful in the present Congress. An entertaining floor show followed. The convention committee—Vernie Johnson, Gordon Bailey and Charles M. Mathes—received due commendation and applause for the excellent arrangements.

Secretary's Report.

Opening the Tuesday morning session, Secretary-treasurer R. N. Ruedlinger reported a financial bal-[Continued on page 55.]

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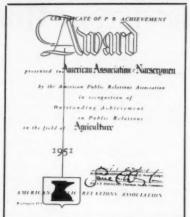
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PUBLIC RELATIONS GROUP CITES "PLANT AMERICA."

The American Association of Nurserymen's "Plant America" nation-wide program has received new recognition as one of the outstanding product promotion and public relations programs of the year—this time by the American Public Relations Association. On November 15 at Washington, D. C., a certificate was presented to the A. A. N. "in recognition of outstanding achievement in public relations in the field of agriculture." The program had been previously honored by the American Trade Association Executives.

A citation accompanying the award paid the following tribute to the A. A. N.:

"Recognition is given for a skillful public relations program in which benefits were developed for members of the American Association of Nurserymen by a campaign emphasizing recreational and economic values inherent in judicious reforestation and other conservation measures, with successful enlistment of the cooperation of various conservation interests. Of prime concern to the association was the important place of the nurseryman in 'Plant America' program.



The public relations award presented to the American Association of Nurserymen by the American Public Relations Association.

Widespread interest in public and private planting projects, civic proclamations in support of the campaign and members' increased sales testify to success of the program."

Commenting on the award, Richard P. White, executive secretary of the A. A. N., said, "Naturally, the A. A. N. is particularly pleased with being the recipient of this award from the American Public Relations Association as it again focuses atten-

tion on an extremely important nation-wide movement which benefits all that participate in it. The manner in which this program is developing and the large amount of publicity that it is receiving in the garden and general press are testimony to its general appeal."

Robert Ramspeck, chairman of the United States Civil Service Commission, headed the committee of judges which selected the award winners. Other judges were Ray. mond Bill, publisher, Sales Monu-ment, New York; Alfred E. Greco, Pullman Co., Chicago; Reginald T. Clough, Tide magazine, New York: Charles W. Jackson, the White House staff, Washington, D. C.; Robert E. Harper, National Business Publications, Inc., Washington, D. C.; Dr. Cloyd Heck Marvin, president, George Washington University, Washington, D. C.; Keen Johnson, Reynolds Metals Co., Louisville, Ky., and Donald M. Hobart, Curtis Publishing Co., Philadelphia.

WINS CONNECTICUT AWARD.

Fred Moore, Westport, Conn., has received the 1951 Connecticut nurserymen's award of \$100. The award is presented by the Connecticut Nurserymen's Association to a student majoring in nursery management on the basis of scholarship, character and participation in student activities.

Mr. Moore, a student at the Ratcliffe Hicks School of Agriculture of the University of Connecticut, has had varied experience in the nursery field, having worked in nurseries, on an estate and for a landscape construction firm. He is a member of the Horticulture Club, secretary of the School of Agriculture Association and volunteer member of the university fire department.

LEND PLANTS TO STUDENTS.

Three nurseries at Dansville, N. Y., lent plants to landscape students at the New York State Agricultural and Technical Institute at Alfred University, Alfred, N. Y., to be used in an exhibit at the university's fifth annual fall festival Nevember 15 and 16. They were Kelly Bros. Nurseries, Ullyette Bros.' Nursery and Maloney Bres. Nursery Co.

The students constructed a garden scene, featuring a stone wall and a pool. One of two signs at the edge of the garden credited the nurseries which contributed plants, and the other read "Plant America for beauty, comfort and better living."



Paul H. Bolton, right, National Association of Wholesalers, Washington, D. C., who was in charge of presentation ceremonies, presents the certificate of the American Public Relations Association for outstanding achievement in public relations to Richard P. White, second from left, executive secretary of the American Association of Nurserymen. Looking on are Col. Benjamin F. Castle, left, president of the American Public Relations Association and executive director of the Milk Industry Foundation, Washington, D. C., and Dr. Paul F. Douglass, second from right, president of American University, Washington, D. C.

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Perennials for the Northwest

By C. A. Mathes

Twenty-five or thirty years ago I should have been confident to tell you how to propagate and grow perennials from A to Z. Today I'd rather listen to such a discussion by some other grower. Many thoughts to what would be interesting have gone through my mind, with one coming back repeatedly.

Methods are many, Principles are few. Methods may change; Principles never do.

When you have difficulty with perennials or any other kind of plants, think of those few lines and you will ease your mind and work out a way—methods may change; principles never do.

That pertains to propagating, growing on, flowering to perfection for exhibit or used for planting, etc.

Years ago, when grounds were plentiful and labor was the same, perennials were planted in large masses for seasonal or color effect. The more rampant they grew, the better they were thought to be. If you have seen large beds of agrostemma and Lychnis chalcedonica. bocconia or phlox, you will recall the effect. Then there was the rock garden age, when demand was for individual effect, when certain characteristics showed individuality and the harder the plants were to maintain and the scarcer they were, the better they were liked. Then we had the formal garden with its geometric designs, fine for parks and estates, yet expensive to maintain.

Throughout these times, as more people desired to live in their individual homes and have a garden, perennials were found to give the best results for one's labor, and the grower always found a ready market

for them at a fair price.

At present times the most prominent use of perenials is in the hardy border. This may be along the boundary of yard or park, close about a residence or other building, parallel to walks or drives. This still gives opportunity of mass effect rather

than the spot effect of lawn beds and, with reasonable care in selection, seasonal succession of bloom.

Talk on "Perennials for the Northwest," by C. A. Mathes, nursery manager of Holm & Olson, Inc., St. Paul, Minn., at the annual meeting of the Minnesota State Nurserymen's Association, December 3, 1951.

In this discussion let us only consider perennials that do well in this section—the north central states—with ordinary care. The best of these are the herbaceous kind, that die completely to the ground, such as peonies, bleeding hearts, hemerocallis and funkias. This type is hardy almost everywhere and, given space to develop, will make bold accent plants in any planting.

Another type has evergreen foliage, in which only the flowering stalk dies out each year, such as heucheras, yuccas, sedums, campanulas, etc. This type needs a little more care as to where it is planted and winter protection. Such plants are not true evergreens; only foliage stays green and does not die down.

The other type that causes most trouble in growing has bulbous roots, such as lilies, and rhizomes, such as the German iris. Where extra care can be given to soil preparation, location and winter protection, selection of this type repays one many fold in having something different, with use of many of these in border plantings being limited in number.

Those perennials growing from tender stolons, such as Campanula persicifolia, Aster novibelgi type and Japanese anemones, are just a little too tender for Minnesota's late spring frosts, passing out then even after coming through a severe winter; so we think of them as something we should like to have, yet not worth the effort to have them.

We thought we could outdo Mother Nature, bringing plants of all kinds through the severest weather so as to have them handy to fill orders in spring.

For years the farmers first kept their vegetables over winter in pits, then enlarged on that idea with a root cellar. Being related to the farmer and seeing what he was doing, the nurseryman went him one better by building it larger and calling it a storage cellar. Then we built all on top of the ground, making a warehouse, used as a storage cellar. With success with this in a small way, we are building larger cellars, putting in anything and everything we can crowd into them regardless of whether it is ripe or compatible with other plants in them. We even work in there most of the winter and think we are putting one over on naturetill spring comes. And then, something did not come through. Yet, we never blame ourselves.

Did the farmer years ago open his pits every day or work in his root cellar? He knew better than to do that.

Looking over the many trade papers and horticultural and gardening magazines, one is struck with the many articles by professors, scientists and chemists, each with his theory of new chemicals to use—not only to make plants grow better or easier, but to combat disease and insects. The names alone apparently are too much for them, too; so they give them all the letters of the alphabet and add numbers to them. And what trouble we run into when we use the wrong letter or number!

Are we growing perennials to dope them with chemicals, buying chemicals to play with or growing plants for the pleasure of their beauty?

I have nothing against the chemists, but when we sell customers plants of any kind, they do not want to buy and use chemicals regularly to have attractive plants on their grounds.

So, many of such articles make it all the more imperative that the grower shows and supplies the public with perennials that are not only hardy, but also will thrive and give satisfaction with a minimum amount of care.

Seeing any perennial in quantity, growing and blooming on your grounds, is the easiest system of salesmanship.

Mass production nowadays is taken care of by the specialists in iris, peonies and chrysanthemums, yet with all the modern methods of mass production, final use of the plants falls to the nurseryman and the principles of salesmanship. Showmanship is better, for no matter how good a salesman you are, final judgment of you and the plants is made by the public as to how they show up.

All varieties or variations of varieties, be it the regular kind or hybrids, are started from seeds. New chrysanthemums, iris, peonies and phlox are started from seeds by those specializing in that phase of the work, taking knowledge, time and labor that most of us do not have or want to put into that kind of work.

The general run of perennials are [Continued on page 60.]

Review of Woody Plant Propagation

By Richard H. Fillmore, Propagator, Arnold Arboretum

Cuttings are of great and increasing importance in the propagation of woody plants, especially ornamentals. I personally do not believe that grafts will ever be entirely superseded by them, yet I am sure that many plants, now perhaps most com-monly produced by grafting, will eventually be propagated almost exclusively as rooted cuttings. Broadrhododendrons, Japanese leaved maples, magnolias, lilacs and even Florida dogwoods are now being profitably rooted by commercial nurserymen while all of us root taxus, arborvitae and numerous deciduous shrubs on a more or less routine hasis

Of the numerous factors which may influence rooting and subsequent development, I wish to include only position of cut, hormones and overwintering in this discussion.

Position of Cut.

Prof. L. C. Chadwick, Ohio State University, has made extensive studies on the effect of position of cut on the rooting of many species. His original papers are unfortunately out of print, but his recommenda-

Second and concluding part of address delivered by Richard H. Fillmore, propagator, Arnold Arboretum, Harvard University, Jamaica Plain, Mass., November 9 at a meeting of plant propagators at Cleveland, O. tions for eighty-six species are presented in convenient tabular form on page 75 of "How to Increase Plants," by A. C. Hottes.

This table indicates that a cut onehalf inch below a node is more effective with a wider variety of woody plants than a cut in the corresponding position above a node. A few genera, including weigela, will root better with the cut in the upper position. Cuts made at a node were more successful for several genera, including six varieties of cotoneasters.

In our propagating work at the Arnold Arboretum, we have frequently had good success with cuttings of the basal ring type in which an entire short shoot is cut through its point of origin on an older branch. Some growers call this type cutting with a heel, but I prefer to reserve this term for those instances in which the cutting is removed with a much larger inclusion of older wood. With lilacs and viburnums we do not ordinarily shorten these shoots, but I believe that removal of the soft tips is desirable with Japanese quinces and some of the more difficult azaleas. With rapid growers we customarily include only one season's growth in our basal ring cuttings, but with slow growers, such as boxwoods, we

may make the cut with 2 or even 3. year wood at the base.

Hormones.

The use of synthetic hormones is a well established and often beneficial practice in rooting cuttings. Assuming that one is thoroughly familiar with the most suitable hormone and the optimum concentration for the species under consideration, hormone treatments will unquestionably promote improved results with a wide variety of plants.

When the requirements of this assumption cannot be met, the indiscriminate use of hormones may do more to inhibit than to promote rooting. We must always remember that plants produce their own hormones and that these natural hormones are often present in sufficient amounts to insure successful rooting.

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I do not wish to be misunderstood. I am a pro-hormone man and I have successfully used hormones on dozens if not hundreds of species. In my present position I am sometimes confronted with plants whose response to synthetic hormones is unknown. Indeed, I may not even know what the plant is, and it is with such plants that I feel particularly cautious.

When unknown response or identity is also associated with a shortage of propagating materials, we use a medium-strength synthetic hormone on all species of the genera ilex and rhododendron. With all other unknown plants, we use no hormone treatments because we feel that we are just as likely to inhibit as to promote rooting. If propagating material is abundant we customarily include both treated and untreated cuttings for every species. In this way we can accumulate data concerning the most effective use of hormones.

Maleic Hydrazide.

Hormones or hormone-like substances may also be used to induce bushy development, thus eliminating laborious hand pinching of rooted cuttings. Although I cannot recommend its use on other than a trial basis, one of my experiences with maleic hydrazide shows definite possibilities in this connection.

Early in 1950 I carried out a series of experiments with maleic



Figure 1. Rhododendron mucronatum (Azalea ledifolia alba). Plant at left was sprayed with 0.6 per cent maleic hydrazide solution to induce bushy development; plant at right was not sprayed.

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Figure 2. One-year seedlings of Juglans nigra. Plant at left was tap-rooted; at right, branch roots developed by snipping in early stage of development. Compa-rable results have been obtained with Juglans hindsi and castanea species. Scale eighteen inches long.

hydrazide (See Arnoldia, Vol. 10, No. 6), a hormone-like chemical which was sent to us for experimental purposes by Dr. John W. Zukel, Naugatuck Chemical Division, United States Rubber Co., Naugatuck, Conn., as a solution containing thirty per cent by weight of the active ingredient in the form of the diethanolamine salt. This new chemical is apparently effective in temporarily inhibiting growth in certain plants. When growth is re-sumed there tends to be a greater than normal development of side shoots (see figure 1).

On January 21, 1950, a few actively growing potted cuttings of Rhododendron mucronatum (Azalea ledifolia alba) were severely injured by spraying to runoff with a 0.6 per cent maleic hydrazide solution. This solution was prepared by adding twenty grams of the thirty per cent formulation, containing six grams of the active ingredient, to one liter of distilled water. A small amount of wetting agent was added to increase the effectiveness of the spray.

Both the treated plants and appropriate controls were left in the warm greenhouse in which they had been growing. On April 14, or about three months after the treatment, the sprayed plants were forming new roots and there was considerable evidence of renewed bud activity. Within a few months they were as large and apparently as healthy as the controls. They were, however, much more compact and bushy.

I now believe that the concentration of 0.6 per cent was higher than necessary and that a lower concentration might have produced a substantially similar effect with less temporary injury to the plant and a shorter period of inhibition. Maleic hydrazide is apparently more effective and less injurious on ericaceous plants than on some other species.

Overwintering.

There is often a big gap between a well established plant and a rooted cutting. Some plants may root well and either fail to withstand potting or die during their first winter. I believe that these difficulties are most frequently experienced with summer wood cuttings.

We have repeatedly rooted Viburnum juddi as soft current year twigs taken in July only to have them die within a few weeks of potting. They seemed to be affected at the soil line by some disease comparable to damping-off of seedlings.

In August, 1949, we made a smallscale comparison between soft cuttings of the current season's growth and twiggy short shoots with 2 or even 3-year-old wood at the base. We found that such twiggy shoots would root as well as or better than younger material although somewhat more slowly. This type of cutting, however, has given us much better survival, and we believe that the age, or at least the firmness, of the wood at the base has a great deal to do with successful overwintering of this viburnum. Contrary to the experiences reported with magnolias and some other species, there seems to be no marked advantage in having these cuttings growing before being placed in a cold house for the winter. We have perhaps not yet secured commercially profitable survival of our twiggy cuttings, but we believe that we are working toward it both for Viburnum juddi.and V. carlesi.

Seeds.

Although nearly always characterized by less precision of reproduction and frequently lacking the speedy development obtained from grafts and cuttings, propagation by seeds is still of the utmost importance. The production of seedling stocks alone is of sufficient interest to warrant inclusion of seeds in a review of this kind. One could easily give a whole lecture on the importance of seeds in the production of forest trees and general nursery stock. I wish, however, to confine this discussion to three little-known techniques which we have found useful in the production of plants from seeds.

We have recently purchased a Waring Blendor for cleaning small lots of fleshy fruits. We first learned of this machine through an article by B. C. Smith, department of horticulture, Ohio State University, who recommended it for cleaning seeds of hawthorn. His results were published in the December 1, 1950, issue of the American Nurseryman.

The Waring Blendor is essentially a motor with a shaft which revolves at high speed to rotate two cutters which are suspended in the base of a specially designed bowl. Unless the timing is exact, these powerful cutters will smash many seeds, even

thick-coated prunus.

We have been able to reduce such injury by covering these cutters with Tygon tubing, a plastic tubing furnished through the courtesy of the Greene Rubber Co., Cambridge, Mass., having one-eighth inch wall and one-eighth inch inside diameter. We removed the cutters, dulled the sharpest edges on an emery wheel and then pressed on short sections of the tubing. We believe that this protection would be reasonably adequate and satisfactory for such fruits as ripe crab apples and many viburnums, but the tubing wears out too quickly to be practical with prunus and other hard-coated seeds.

Upon the suggestion of Alfred Fordham, assistant superintendent at the Arnold Arboretum, we removed the cutters and replaced them with a small square of reinforced rubber taken from the center of the tread of a worn truck tire. This rub-

[Continued on page 42.]



Figure 3. One-year seedling of Juglans nigra photographed from above. This plant is being held erect by its horizontal type of root system. Scale is eighteen inches long.

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Pointers on Propagation

By James S. Wells

FURTHER EXPERIENCES WITH HUMIDIFICATION.

From letters which reach me regularly and from the discussions which took place at the recent plant propagators' meeting at Cleveland, it is clear that humidification has now become established as a vital factor in successful vegetative propagation. People from all sections of the country, growing a wide variety of plants, are trying forms of humidifica-tion, and to date all have proved to be of great value. It is somewhat strange with such a new technique that no one has so far reported adversely. It seems almost unanimous that humidification is a blessing to all engaged in intensive vegetative propagation, and, al-though I expect to hear from some irate grower almost any day about his troubles and difficulties in using a fog system, such a complaint has vet to come.

I use the term "new" in the sense that it is only now that this aid to plant propagation—humidification is becoming widely known among members of the trade, although I understand details of the original tests carried out by some of the universities have been available for some years. I suppose it is the traditional conservatism of men who grow on the land which causes this long delay between the publishing of a vital piece of information and its general acceptance in the trade. Reasonable caution is good, but I do think that we growers are rather inclined to overdo this sometimes. I feel sure that a more open and vigorous attitude toward new ideas might well pay off in larger profits.

We are now coming to the end of our second year in using our humidifying lines, and we can say that they have been an unqualified success. In fact, looking back I begin to wonder just how we managed to get along without them. I have purposely omitted referring to humidification in my last few articles because I wanted to complete the summer propagation and sit back and try to assess the over-all results more accurately before reporting to you once more. On our magnolias the results were excellent, and we were able to root about 28,000 in almost all varieties, including the variety lennei, which had been a tough proposition to root, but under humidification and using a 1.2 per cent

powder of indolebutyric acid we obtained an 85.8 percentage. It now remains only to bring these cuttings through the winter, but we have them well established in pots and plunged in a deep frame under a good mulch of peat, and we hope that the final percentage next spring will be good.

From the results which we obtained with our magnolias and a few other softwood cuttings of a similar type, I am convinced that it ought to be possible for a nursery to use a greenhouse through the summer for the rapid and intensive propagation of successive batches of softwood summer cuttings. To give an illustration, we filled one house with Hydrangea hortensis cuttings, putting these in plain sand under humidification early in July. The cut-tings were treated with Merck's No. 2 powder and rooted rapidly. They were removed from the house at the end of August with great balls of roots and were planted in a coldframe, where they had plenty of time to become established in readiness for overwintering. The house was immediately filled with a batch of Ilex bullata cuttings, using the same sand. The first batch taken was just a little too soft, and for a few feet along the bench some twenty-five per cent of the cuttings rotted, but there the rotting stopped, and a fine lot of cuttings was lifted in the middle of October, heeled in, in flats, and placed in deep frames for overwintering.

The house is now being prepared with fresh sand for its usual batch of winter cuttings. It will be seen that in a 9-month period, from July to March, we shall have taken three complete batches of cuttings from this one house, and all the material will be ready for machine planting in the open ground next spring. I believe that a somewhat similar system would be readily adaptable to the nurseryman producing large quantities of flowering shrubs, for I cannot believe that they would be any more difficult to root and to handle through the winter than the subjects I have mentioned.

AZALEAS UNDER HUMIDIFICATION.

One of the things which make plant propagation so intensely interesting is the temperamental uncertainty of many of the plants with which we work. One cannot deny that it is annoying, yet at the same time it should be stimulating to take a batch of cuttings apparently at the best possible time and in excellent



A house of azalea cuttings grown under humidification. Note the high patches which are under each jet; these cuttings rooted more quickly than those between the jets and appeared to be generally more vigorous. This was attributed to the fact that these cuttings received a fair amount of free water from the heavy mist which came from the jet; they seemed to thrive on the excessively wet conditions.

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Monarch H-261 humidifying nozzle

condition only to have the cuttings die rapidly. Azaleas seem to have an extremely well developed temperament of this type, for in some years the first and even the second batch of cuttings will die without any immediately obvious reason. Speaking generally, I suspect that these setbacks arise from our desire in get started on the job too early, before the material is fit to take, because it seems almost impossible to kill a good cutting.

I reported last year on a small test we made with cuttings of Azalea kurume Hinodegiri under humidification, and following the success of this we installed a fog line in our azalea house early this year. The cuttings were inserted commencing July 22 in our usual medium of fifty per cent peat and fifty per cent sharp sand and were maintained at a continuously high state of humidification. This did not mean that the fog line was run continuously, but during the hot weather of July and August it was turned on from four to six times daily for perhaps ten to fifteen minutes at a time. The cuttings never wilted and began to root in two weeks. A week later rooting was general, and in five to six weeks many batches of cuttings were ready to remove from the house. The system was particularly successful on the more difficult va-rieties, the so-called "hard" varie-ties, which root rather slowly under ordinary conditions. All the kaempferi hybrids responded well as did most of the Gable types. There were one or two exceptions in the Gables, but these were relatively obscure va-rieties not yet released. The Kurume

group also responded well, with but one or two conspicuous failures. Hinodegiri was good, but the somewhat softer varieties Snow and Pink Pearl were only moderately successful. Soft cuttings of Addy Wery would not take it at all. It seemed to me that these softer varieties responded well for a short time, not more than two or three weeks at the most, but as they commenced to root the high humidity had to be lowered a little to keep them healthy. It is of course impossible to make any clear-cut suggestions from only one year's test, but generally we were well pleased with the results of our azalea propagation under a fog line. We now realize, however, that there are a few varieties which may not do well under these conditions.

One happening of particular interest, which we also noticed throughout all our propagation this summer, occurred in this azalea house. The cuttings immediately opposite the jets on the humidifying lines appeared to be brighter, cleaner and generally more vigorous than those between the jets, and we could attribute this only to the fact that a small area immediately in front of the jet received a fair amount of free water from the heavy mist which came from the jet. These cuttings looked much better, rooted more rapidly and generally seemed to thrive on the excessively wet conditions. Although we are considering

azaleas, this same condition was apparent in the adjoining house of magnolia cuttings. You could see clearly down the length of the house the batches of cuttings which were opposite the jets. The jets which we use are Monarch H-261. These are designed to operate on 120 pounds' pressure, but as we are working directly from our pressure tank on the mains we have a pressure of only seventy pounds. As a result, the water comes from the jets less finely divided than it should be and the spread from each jet is reduced. With the examples so clearly to be seen in azaleas and magnolias, we have come to the conclusion that, in order to obtain the maximum results from our system, we need to double the quantity of jets in our houses, fixing them two feet apart alternately on the line. This would mean that jets would be four feet apart on the same side, giving us more complete coverage. It would be an advantage also if we could install a pressure pump to boost the pressure on the lines feeding the greenhouses up to 120 pounds, but as we have already spent a considerable amount of money on copper tubing and jets we are not proposing to do this at this time.

Growers around here have long maintained that too much water will quickly rot azaleas, especially if they are in a somewhat peaty medium. The patchiness in our cuttings which followed the use of the hu-



These azalea cuttings were flooded by hose six times daily in addition to the water they received through the humidification system. The fact that the cuttings look just as vigorous and healthy as those not subjected to the excess water treatment tends to disprove the belief that too much water will rot azaleas.



The effect of medium on rooting, showing the variation in rooting between different varieties grown in pure sand.

midifying lines seemed to indicate that this was not correct, and I therefore instructed my propagator to take a section of the bench and flood it with a hose six times each These cuttings were in the middle of the house and therefore in addition regularly received water through the humidifying line. This small section was to have a much heavier dose of free water. The object of the experiment was to try to kill the cuttings with excess water, but you will see from the illustration that we did not succeed; these cuttings look just as vigorous and healthy as any of the others. We have come to the conclusion, therefore, that, given adequate drainage, excess water is not in itself detrimental, although under certain conditions it can be.

This brings us to the question of rooting media. A great many valuable data have been collected on the use of different rooting media for certain plants, and this is in itself a subject for an article, if not a book. Yet when propagators get together there will be the widest divergence of opinion as to the value of certain media, and some first-class growers will say that they can root any cutting in any medium and that the only purpose the medium serves is to hold the cutting upright and in the best position for rooting. To this I cannot agree, because I have proved to my own satisfaction at least that in some instances different media can produce astonishingly different results. But the effect of humidification on this would seem to be to minimize the previous differences noticed between media, to level out these differences and generally to raise the standard of excellence in all media. I believe, however, that it will finally be necessary to repeat many of the experiments using vermiculite, peat and sand mixtures and so on under conditions of high humidity so that their value can be redetermined. There is also no doubt in my mind that under our system, where there is a considerable amount of free water deposited on the surface of the benches, first-class drainage is essential.

Let me illustrate briefly the leveling-out process. We had previously found that under normal conditions magnolias rooted best in a medium of twenty-five per cent peat and seventy-five per cent sharp sand, but under high humidification we find that we obtained even better results using plain sharp sand, which of course also provided first-class drainage. This whole question of media is of great interest and will certainly be referred to again before long.

To summarize, therefore, we come out with an unqualified "yes" to the question "Is humidification of any value?" We believe that operating on normal pressures of from sixty to seventy pounds, it is advisable to have the jets spaced at 2-foot intervals alternating to give a 4-foot space between them on any one side. We also believe that if the system can be operated at a much higher pressure this is to be preferred, using pressures as high as 400 pounds if the pipes will stand them. If operating at low pressures, we think that the medium should be coarse to give really good drainage of any free water.

We are proposing to use our lines for experimental grafting of rhodo-dendrons and other broad-leaved evergreens without the use of double glass. We have long been of the opinion that, if double glass could be eliminated, the plants would greatly benefit. Our experiments this winter are being directed to this end.

PROPAGATORS' GUILD.

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The full report on the Cleveland meeting appeared in the preceding issue, and therefore I would only suggest that any grower who is keenly interested in or engaged in any form of plant propagation and who would like to see a guild established in which he can participate should write at once to the chairman of the committee, Edward Scanlon, Trees Magazine, Box 5607, Cleveland, O. He will then be kept informed as to developments and will be able to take an active and useful part in the formation of a society which we believe can be of inestimable benefit to all plant propagators and through them to the nursery industry as a whole.

CONARD-PYLE CO. ELECTS.

Officers have been elected for the Conard-Pyle Co., West Grove, Pa, filling the vacancy caused by the death of Robert Pyle, president of the company for forty-five years. The new officers were largely selected by advancement from within the company.

Sidney B. Hutton, the new president, joined the firm in 1930 and has been for many years the general manager and vice-president. His son, Sidney B. Hutton, Jr., who succeeds his father as general manager and vice-president, has been with the firm since 1942 and a director for the past two years. Jonathan Steere, Haverford, Pa., continues as the other vice-president.

George Ohlhus, the new secretary, has been with the firm since 1929 and has been a company director and in charge of rose growing, in which he will continue. John H. Wood, Langhorne, Pa., will be the new treasurer.

BUSINESS is being carried on as usual at Gardner Greenhouse & Nursery Co., Sherrard, W. Va., where all buildings except the greenhouse were damaged or destroyed in a recent fire.

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Holly and Mistletoe Yule Symbols

Symbolic of Christmas are the foliages and berries of holly and misdetoe that highlight the decorations in homes and shops at the holidays.

The legends behind the use of holly as a Christmas decoration are numerous. The early Romans used it for home decorations, to carry in processions and for decorating idols. At their annual festival of Saturn, which began December 17 with official rites that included the masters' waiting upon their slaves, the Romans trimmed the tree in honor of Bacchus, who shared the festival with Saturn, god of winter squing.

The Druids of ancient Gaul thought that the evergreen leaves attested to the fact that the sun never deserted holly and therefore it was sacred. They wore holly in their hair when they cut the even more sacred mistletoe and hung branches of holly over doorways as a refuge for the spirits of the forest. When the birds had eaten the berries, the Druids believed that the spirits had returned safely to their woodland habitat.

Later stories endowed the holly plant with magic power to repel thunder and lightning; so trees were planted close to homes. Many persons swallowed a syrup made from holly bark that was supposed to cure winter coughs. Because of the belief that the plant was superior to witches, it was placed on windows and doors to keep out evil spirits. No holly plant was ever chewed by any animal, and a holly rod was supposed to subdue the most vicious beast. Anyone who belittled the magic power of the plant would hang. Some Englishmen considered it unlucky to bring holly into the house before Christmas eve, while many others thought that every piece of holly must be removed by January 6, Twelfth night, after the feast of Epiphany, which concluded medieval Christmas festivities. It has been said that whoever brings Christmas holly into the house first, husband or wife, is the one who will rule the ensuing year.

Christian lore expanded the pagan beliefs into such legends as ones to the effect that holly sprang up in Christ's footsteps as he moved; that holly berries, originally white, became red when Christ was crucified; that the first appearance of holly was with Christ, and that holly was the burning bush from which an angel of the Lord appeared to reassure Moses. As Christian symbolism, the plant's berries promise life everlasting. Another belief is that the holly wreath originally signified Christ's crown of thorns. Others use holly as a general symbol of the Christmas spirit. But whatever individuals' reasons for using holly during the Christmas season, nurserymen offer twenty-five different species from nearly 300 recognized deciduous and evergreen kinds distributed throughout temperate and tropical zones.

Most often associated with Christmas decorations is the English holly, named Ilex aquifolium by the Swedish botanist, Linnaeus. It is a dense plant, with glossy, sharp leaves. The species is a native of the British isles, central and southern Europe and many parts of Asia. Its excellent foliage and dense berry clusters make it a favorite Christmas decoration. It is less hardy than the American holly grown in eastern America and is extensively cultivated in the Pacific northwest. English holly requires a protected spot, acid soil and plenty of moisture. It may be dis-tinguished from the American holly by the flowers and fruits borne on wood of the previous season, whereas flowers and fruits of the American species appear on growth of the current season. On each leaf of the English holly is a narrow, transparent band, and more than 100 varieties have been described.

Ilex opaca, the American holly, develops into a specimen reaching thirty-five feet or more in height when grown in its natural habitat from Massachusetts to Florida and Texas. Good growth is seldom reached when the plant is grown near New York or farther north. It appears in two forms, staminate and pistillate. Flowers appear in June, with small green berries in the center that grow and ripen into bright red berries after pollination. Foliage is dark green, and the plant grows narrow or pyramidal in shape.

Desert holly is a decoration recently preferred by some. Its silverwhite leaves and small clusters of red berries clinging to the stalk are similar to the English holly in appearance and provide a holiday color.

Ilex verticillata, or the common winterberry, is a deciduous plant having red berries and growing in the south and in the east to a height of ten feet. Ilex cassine, the Dahoon holly, is an evergreen having red berries, and it grows to a height of twenty-five feet in the southeast. Ilex glabra, the inkberry, is an evergreen that grows in the east, has black berries and reaches a height of eight feet. Ilex decidua, recognized .as swamp holly or possum haw, grows in the eastern regions to a height of twenty-five feet; the plant has irregular-shaped deciduous leaves and orange-red berries. Ilex montana, or mountain winterberry, is a simple deciduous plant with red berries; it grows to a height of twenty-five feet in the eastern range. Ilex laevigata, the smooth winterberry, is an evergreen species having scalloped leaves and red berries, and it reaches a height of ten feet in its eastern habitat. Ilex vomitoria, the yaupon, which is found in the southeastern regions, grows twenty-five feet tall, has scalloped leaves and red berries and is an evergreen.

Closely related to the holly family are Photinia arbutifolia, the Christmasberry, which is from the southeast, grows to fifteen feet in height, has simple evergreen leaves and produces red berries; Mahonia aquifolium, the Oregon grape or holly grape, which is from the west, grows to eight feet in height, has toothshaped leaves and produces purple berries, and Nemopanthus mucronata, the mountain holly, which is from the east, grows to ten feet in height, has simple deciduous leaves and produces red berries.

Stories of the mistletoe as a seasonal decoration also vary. The Druids accepted it as a most sacred plant, as did many pagan peoples. Mistletoe found on oak, their most sacred tree, was used for midsummer and midwinter festivals. The berried sprays were cut by the white-robed priests, who used golden knives. Other Druid priests caught the cut pieces in a large, white cloth, for the belief was that mistletoe must never touch iron or earth.

In Greek legends, the golden bough that Acneas carried with him on his perilous journey to the underworld was none other than the mistletoe. In Norse mythology the mistletoe was sacred to Freya, goddess of the sun and one of the goddesses of love and beauty. But the story is that Freya did not warn the mistletoe when she told other plants not to harm her son, Balder, because she thought the mistletoe was too young and feeble to be dan-

[Continued on page 35.]

Fall Meeting of American Holly Society

By Harry W. Dengler, Secretary

Despite cool, crisp weather and in progress. This included the inintermittent rainfall, seventy-eight members of the Holly Society of America enjoyed their ninth semiannual meeting November 1 and 2 at the Log Cabin Lodge, New Jersey agricultural experiment station, New Brunswick.

Herbert G. Sanders, Espoma Co., Millville, N. J., chairman of the nominating committee, recommended that the society's officers be nominated and reelected for another term. They were, and continuing as president is C. R. Wolf, New Jersey Silica Sand Co., Millville; as vice-president, Dr. C. H. Connors, department of horticulture, Rutgers University, New Brunswick, and as secretary-treasurer, Harry William Dengler, extension forester, Unisity of Maryland.

Arboretum Toured.

The meeting began at 2:30 p. m. November 1, with a tour of the station's holly arboretum, orchard and testing grounds under the direction of Dr. Connors and Prof. Robert B. Clark, also of the department of horticulture, Rutgers University.

At the holly arboretum twentythree male and 185 named or numbered selections or clones of American holly, Ilex opaca, are growing under almost identical conditions. These are artistically planted in nine different informal groupings and are arranged according to their origin. As the trees become older and assume their more mature forms, they are to be carefully evaluated to determine their hardiness, fruitfulness, character, habit of growth, foliation and usefulness, as a hedge plant, specimen tree or Christmas decorations.

Also in the arboretum are three groupings of other species, with their selections, of the hollies. One is devoted exclusively to the deciduous hollies, another solely to the crenatas, while the third includes plants of the aquifolium, cornuta and pernyi groups. More than sixty plants are included in these three areas.

After a brief inspection of the station's coldframes in which holly cuttings were growing, the members sought temporary respite from the cold in the department of horticulture's small greenhouse. There Dr. Connors and Professor Clark explained the holly experimental work

vestigation of the setting of holly fruits without pollination by the use of hormone sprays and by natural parthenocarpy. The group also observed holly plants growing in sterile sand fed by nutrient solutions from which various essential and trace elements were being withheld. Deficiency symptoms and their characteristics are to be noted and classi-

The remainder of the afternoon was devoted to an inspection of the station's holly orchard, where 230 plants are being subjected to various fertilization treatments in an effort to learn what materials appear most satisfactory for coloring up both the foliage and the fruits of the American hollies.

Y.M.C.A. Holly Room.

President Wolf presided at the evening meeting. He discussed, in brief, the new \$300,000 Millville Y.M.C.A. building in which is being developed an all-purpose meeting room to be known as the Holly room. Mr. Wolf introduced Forest Crooks, Doylestown, Pa., a professional artist and a society member with an interest in holly as a hobby, who has been engaged to design the room.

Mr. Crooks disclosed that the room is to be about thirty feet wide and sixty-two feet long. One wall is to be painted white with a green trim. In the center of this wall is to be placed a large glass showcase in which items of interest relating to holly are to be on display. These will be changed periodically according to their timeliness, appropriateness and usefulness. Items to be included will be objets d'art with holly motifs; landscape plans using holly; new bulletins, circulars and magazine articles on holly; suggestions on the care of, fertilizing, mulching and propagating holly, and control of insects and diseases affecting holly. On the wall itself will be a series of pictures or sketches, drawings and paintings, all of which relate, in one way or another, to holly. The moldings of the pictures are to be of holly wood. The pictures are to be changed with the seasons to provide freshness.

Business Session.

Mr. Wolf again presided at the all-day meeting starting at 9:30 a. m. November 2. Dr. Connors extended

greetings to the members on behalf of the president of Rutgers Univer. sity and the dean of the college of agriculture.

Secretary-treasurer Dengler indicated that the society now has 306 regular members and sixty-one sustaining members. This represents a one-year gain of eighty-one new members. He reported that sale of society publications returned \$34.50 to the treasury during the past six months. Expenditures for the year totaled \$112.63, while the bank balance on hand October 31, 1951, was \$605.85.

Wilfrid Wheeler, Ashumet Farm, Falmouth, Mass., chairman of the arboretum committee, reported that the interest in hollies which the society has awakened is much in evidence. Not only do people want to grow them, but there seems to be no limit to the places where people want to plant them.

Holly Insects.

Dr. Clyde C. Hamilton, chairman, insect committee, and entomologist at the New Jersey agricultural experiment station, reported that he and Spencer Davis, pathologist at the station, had been called to the town of Sea Girt, N. J., during the past March to inspect a number of holly trees reported to be in a most unhealthy condition. A careful investigation revealed that the leaves of holly had many purple spots with distinct punctures on both the upper and lower leaf surfaces. Tests indicated that this was not a disease, but apparently had been caused by spines on nearby leaves puncturing the surfaces, probably during a storm in late November, 1950. They also found a heavy infestation of the holly leaf miner, that most of the 1949 leaves had already dropped off and that many of the 1950 leaves would drop off soon. All were badly damaged by leaf miner, but the southern red mite, a notorious pest of holly, seemed not to be a problem. Dr. Hamilton and Mr. Davis recommended that a meeting be called at which time control measures could be discussed and community corrective efforts be explored.

A meeting was held April 6, 1951, in the public library at Sea Girt. About 135 persons were present. Dr. Hamilton presented information on the life history, habits and the con-

[Continued on page 46.]

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Arome	.40	1.25	2.25	8.00
Big Joe	.40	1.25	2.25	8.00
Blakemore		1.25	2.25	7.50
Catskill	.45	1.35	2.50	8.50
Chesapeake		1.35	2.50	9.00
Dorsett	.40	1.25	2.25	8.00
Dunlap	.40	1.25	2.25	7.50
Fairfax		1.35	2.50	8.50
Fairland	.40	1.25	2.25	8.00
Fairpeake	.45	1.35	2.50	8.50
Gem (Everbearing)	.75	2.50	4.75	17.00
Klonmore	.40	1.25	2.25	7.50
Lupton Late	.40	1.25	2.25	8.00

	Per 25	Per 100	Per 250	Per 1000
Mastodon (Everbearing)	\$0.75	\$2.50	\$4.75	\$17.00
Massey	.40	1.25	2.25	8.00
Midland	.45	1.35	2.50	8.50
Premier	.45	1.35	2.50	8,50
Red Crop	.40	1.25	2.25	8.00
Red Star	.45	1.35	2.50	8.50
Robinson	.40	1.25	2.25	8.00
Streamliner (Everbearing)	.75	2.50	4.75	17.00
Southland	.40	1.25	2.25	8.00
Superfection (Everbearing)	.75	2.50	4.75	17.00
Sparkle	.40	1.25	2.25	8.00
Temple	.40	1.25	2.25	8.00
Tennessee Beauty	.40	1.25	2.25	8.00
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		Per	Per	Per
	Each	10	100	1000
Agawam (red), 2-yr., No. 1	\$0.30	\$2.00	\$15.00	\$125.00
Agawam (red), 1-yr., No. 1	.25	1.75	12.00	100.00
Brighton (red), 2-yr., No. 1		2.00	15.00	125.00
Brighton (red), I-yr., No. 1		1.75	12.00	100.00
Caco (red), 2-yr., No .1		2.00	15.00	125.00
Ceco (red), 1-yr., No. 1		1.75	12.00	100.00
Catawba (mahogany), 2-yr., No. 1		2.00	15.00	125.00
Catawba (mahogany), 1-yr., No. 1		1.75	12.00	100.00
Concord (blue), 2-yr., No. 1	.25	1.75	12.00	100.00
Concord (blue), I-yr., No. 1	.20	1.50	9.00	80.00
Delaware (red), 2-yr., No. 1		2.25	18.00	150.00
Delaware (red), I-yr., No. 1	.25	2.00	15.00	125.00
Fredonia (black), 2-yr., No. 1		2.00	15.00	125.00
Fredonia (black), 1-yr., No. 1		1.75	12.00	100.00
Moore's Diamond (white), 2-yr.,				
No. 1	.30	2.00	15.00	125.00
Moore's Diamond (white), 1-yr.,				
No. 1	25	1.75	12.00	100.00
Moore's Early (black), 2-yr., No. 1	.30	2.00	15.00	125.00
Moore's Early (black), 1-yr., No. 1	.25	1.75	12.00	100.00
Niagara (white), 2-yr., No. 1	.30	2.00	15.00	125.00
Niagara (white), I-yr., No. 1	.25	1.75	12.00	100.00
Portland (white), 2-yr., No. 1		2.25	18.00	150.00
Portland (white), 1-yr., No. 1		2.00	15.00	120.00
Worden (black), 2-yr., No .1	.30	2.00	15.00	125.00
Worden (black), I-yr., No. 1	.25	1.75	12.00	100.00

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			25	100	250	1000
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2-yr., N	No.	I grade	1.00	3.00	5.75	20.00
1-yr., N	No.	I grade	75	2.50	4.25	14.00

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Plant Notes Here and There

By C. W. Wood

A Pennsylvania reader asks for a note on Thermopsis caroliniana, stating that he has T. montana and likes it.

Thermopsis, which means lupinelike, is like lupine in more ways than one. For instance, the showy racemes of T. caroliniana remind one of a glorious yellow lupine that has become easy to grow. And experience shows that appearances do not belie actual performance, for the plant is easy of culture in almost any light soil, producing its beautiful yellow pea flowers in large clusters on stems long enough for cutting.

All of this makes it good cutting material as well as a splendid garden plant, growing three or four feet tall and blooming during part of June and July. Seeds are slow to germinate, and so they should be planted as soon as ripe or, if planting is delayed until spring, they should be soaked before planting.

Aster Bellidiastrum.

After an absence of many years from our garden here in northern Michigan, a little, much-named plant made the past summer a more pleasant one by its long blooming period. It is the aster daisy, twelve inches high or shorter, that grows along stream banks in southern Europe. Rotanists have called it bellis, aster, bellidiastrum and doronicum at different times. It all makes a mere gardener like you and me wonder what it should be called. I have noticed lately, however, that the systematists seem to have settled on Aster bellidiastrum; so perhaps we can use that name, too.

Regardless of name, it is a good plant for either a moist spot or a less damp situation in shade, producing its large white daisies with yellow centers from June until frost. Seeds are late in coming up; so they should be planted outdoors in autumn. A. bellidiastrum can be propagated by division, preferably in spring, and perhaps also from cuttings.

Some Thoughts on Helenium.

Most common names of plants have their foundation on fact or fancy, or they are aptly descriptive of some plant characteristic. For instance, the common name for myosotis reminds one of the armor-clad knight who plunged into the Danube to obtain a floating piece of what we now call the water forgetme-not for his lady fair. Finding himself sinking fast beneath the water, he flung the blooms ashore to his agonized mistress with a last effort, crying, "forget-me-not." Likewise, creeping Charlie, Jack-othe-buttery, tangle-tail, tripmadam and many other names which Sedum acre has gathered through its long association with gardeners are aptly descriptive of the invasive nature of the plant.

But it requires some stretching of the imagination to justify the modern Helen's flower as a logical name for what we of the old school know as sneezeweed. It may be that the unknown author of this fanciful name took his cue from Meeham, who traced the generic name, helenium, to the ancient Greeks. "It is said," Meeham wrote, "that the fair but frail Helen, the eloping wife of Menelaus, for whose sake the siege of Troy was undertaken, was a cultivator of flowers, and that in her collection she had a plant which would destroy serpents. The name of the plant mentioned by Pliny as helenium is supposed to have been suggested by this story."

The best authorities seem to lean to the theory that the name comes from Helenus, the son of Priam How could one derive Helen's flower from that? I rather suspect that the modern name is the invention of some nurseryman, whose allergic customers displayed an impenetrable armor of sales resistance when sneezeweed was mentioned. In that case, the name would no doubt be warranted by the records of the nurseryman's countinghouse.

Parenthetically, the bits of plant lore which have been interwoven in these notes during recent months have been prompted by numerous letters from our readers, who said that they are interested in these matters and that they use some of the lore in their sales literature. If you have occasion to write, it would

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HONEYSUCKLE, WINTER. An aristocratic shrub that deserves wider use. The foliage is nearly evergreen, yet hardy north. Fragrant, lemon-scented, cream-colored flowers in early spring.

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 5.00 per IO; 45.00 per IO

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2 to 3 feet. \$6.00 per I0; \$55.00 per I00 18 to 24 inches. 5.00 per I0; 45.00 per I00

LILAC, CHINESE. If you want a lilac that is sure to bloom, plant this one. Oftentimes blooms same year it is planted. Vigorous grower with slender, arching branches; self edging. Flowers lavender-purple.

LILAC, CHINESE PINK. This one is just like the one above, but it has pink flowers. Our own selection.

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SPIRAEA ANTHONY WATERER. There is never enough of this excellent everblooming dwarf shrub to go around, especially the large plants we are offering below. Of course you know the flowers are red.

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help in the preparation of future notes to know your reaction.

Call them whatever you wish, but do not fail to use the sneezewood, especially the species and its varieties known as common sneezewood. The blooms harmonize well in any garden scheme, adding color to a dull garden and toning down a gaudy one, and the plants need little care.

Some writers tell us that common sneezewood, Helenium autumnale, needs a damp soil, basing their opinion no doubt on the fact that the plant grows naturally in moist places throughout most of the east. However, experience has shown that it grows well in any good garden soil that is not desert dry. A fertile soil, especially one rich in humus, will usually compensate for the loss of moisture, and a little cultivation to conserve moisture will cause them to bloom throughout much of summer and autumn.

If one is to judge by old clumps seen in some gardens and nurseries, the importance of frequent division, about every third year at least, is not always appreciated. Fairly good results may be expected even from neglected specimens, but the long stems and high quality of exhibition stock can come only from carefully nurtured young stock.

Many growers can no doubt remember the time when we had little more than the ordinary sneezeweeds of nature, most of them with lemonyellow flowers and narrow petals. Even then, sneezeweed was much used by discriminating gardeners, not only because of a long blooming period and because it is easy to grow, but also for its attractive appearance and the fact that it combines well with many other plants of its season. Now, though, we are blessed with many kinds, with flower colors ranging through various shades of yellow, bronze, terra cotta and brown to red or near crimson.

The catalogs, which give a more detailed description of the kinds than would be possible in this brief note, may be used to point the way to the varieties best suited to your needs, whether they are for plant sales or landscape work. Particular attention should be paid to height of the plant, for therein is a fairly sure clue to a matter not always made clear by writers of catalog copy. There seems to be some correlation between the height of the plant and the flowering period. Those attaining a stature of two or three feet almost invariably com-

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This Business of Ours

Reflections on the Progress and Problems of Nurserymen

By E. Sam Hemming

VALUE OF SHADE TREES.

Even before I read Mr. Wysong's recent article, "The Evaluation of Shade Trees," I had resolved to write an article on some experiences of mine. Since they may be unique, the comments may not be out of place

There is a large estate on the Eastern Shore of Maryland that was built and planted during the fabulous 20's. The countryside was virtually scoured in the hunt for unusual specimens of a movable size. Trees were moved to the estate in sizes that were as large as it was then physically possible to move (we did not do the job), and a large sum of money was spent on the landscaping.

During 1933 this section suffered a severe hurricane, and, as you can expect, a number of the transplanted trees were blown over or damaged and broken. The owner, realizing the money spent in planting the trees, had the balance of the planting cov-ered by an insurance policy. I do not know the details and terms of the policy other than that it is quite an extensive one and, from intimation, that the premium is quite high. I have never heard of another policy like it. Because for the past five or six years I have been the one who has been called in to estimate any damage done, I do not want to know the details of the policy.

Frankly, I do not relish the job and yet I seem to have suited both the owners and the insurance company and I have not used any tables, even the old ones mentioned by Mr. Wysong. I consider the following modifying factors. First, I mentally estimate the cost of moving in a replacement of the largest practical size, and then I consider the health of the tree that was lost, its position in the landscape and its probable length of life even though it is healthy. Last, but not least, I settle on a figure that I can support, in case I am called to testify before a jury of farmers. Regardless of my interest in trees and my love for them, I keep a sense of proportion.

The only instance in which an almost definite evaluation can be placed upon a tree is the situation where a man might pay \$1,000 for a bare lot, yet pay \$2,000 for a lot the same size with a handsome shade tree on it. Yet, he would not pay

\$6,000 for it if it had five shade trees

There is still another factor that is not mentioned enough. It is that all trees, the sequoias notwithstanding, have a definite life cycle and that a healthy red oak, for instance, is only going to live so long, and it is not as long as many think. Trees do not live forever.

Another factor I consider, especially on this place mentioned above, is that transplanted large trees do not behave the same as a tree that grows in place from small size to maturity. I have mentioned this before and I repeat it, for my continued observation has not made me change my mind. Even though a large transplanted tree continues to grow, it is so shocked or checked by the transplanting that it generally assumes the character of late maturity or even old age. As a result, it is my feeling that if it costs \$400 to move a large tree, that same tree does not continue to add to its value as the years go by; there should rather be an annual depreciation.

Shade trees do have a definite value, but now that the fact seems to be becoming well established in the mind of the layman, let's keep away from the fantastic.

E. S. H.

HARDY CHRYSANTHEMUMS.

I doubt if any plant, not excluding the rose, has had the hybridizing attention that the hardy chrysanthe. mums have received in the past twenty years. Not only have there been developed a wide range of colors, a long season of bloom, a range of sizes and a number of types, but there has been developed a singular use found for few other plants. I believe the customer and not the grower is responsible for this development. The chrysanthemum has become more than just another herbaceous perennial available in wide variety. Like the tulip, it has become a landscape plant in its own right and has come out of the perennial border into the shrub border, the foundation planting and the walk and drive borders. These uses have had a happy result and have added a great deal of color to the autumn landscape.

The chrysanthemum genus is a large one, and the culture of chrysanthemums has been carried on in the Orient since ancient times, par-

We wish to extend to all our friends
our best wishes for a
Merry, Merry Christmas
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Happy, Prosperous New Year.

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Season's Greetings

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Also 20 Yellow and Orange Climbers Write for trade prices to

BROWNELL ROSES LITTLE COMPTON, R. I. ticularly in Japan and China, where there must be at least 150 known species. From these many species the crosses have been so numerous that in many cases the modern flower could not be traced. While there are many so-called types of chrys. anthemums, there are for our purposes two main classifications, the tender ones and the hardy ones. The tender types, grown mostly by florists, include some of our superb cut flowers, and it is interesting to note the gorgeous shades of white, vellow, pink and bronze and the large heads six inches in diameter.

Twenty years or so ago the list of hardy chrysanthemums was rather meager and the flowers were mostly of the small button type, with a preponderance of wine or magenta colors; the plants were fairly tall and flowered mostly in November. Then, in a characteristic wave of enthusiasm, a number of plantsmen became interested in the plant. It is impossible for me to know and give credit to those mainly responsible for they are many, but men Alexander Cumming and like Charles H. Totty and the plant breeders at the U. S. D. A. plant industry station, Beltsville, Md.; at universities in the middle west, and elsewhere have been in the forefront of the work. The introduction of the arctic chrysanthemum and the Korean types into the hybrids had considerable to do with the wide development of varieties. One of the developments desired was the creation of earlier-flowering varieties; they now flower in August, September, October and November. I note on some varieties a few scrubby flowers borne earlier, and I assume there will eventually be good varieties blooming earlier.

The color range is marvelous and includes white, yellow, pink, red, bronze and even lavender; everything but blue. The profuseness of flowering is well known and is at its greatest in the cushion types. The flower types range from single to very double and from little buttons to big shaggy ones that would probably rival the tender types if nurserymen disbudded their plants as the florists

To all these desirable characters can be added the relatively great sturdiness and foolproof ability of the plant to survive.

A nurseryman not particularly interested in perennials can set a number of varieties of these out in rows and when fall comes add materially to his cash-and-carry sales. Even though the gardener usually plants IN

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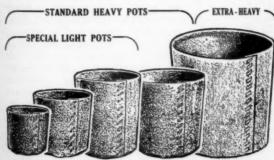
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chrysanthemums in the spring, they can be transplanted at almost any time with a little ball of earth; better still, the nurseryman can do a good business growing them in paper pots. They propagate easily from cuttings or small division, but are so showy that customers will pay a fair price for them.

The modern amateur gardener can now have a broad season of color in his borders by the use of just a few perennials, spring bulbs, floribunda roses and hardy chrysanthemums, an effect which a few years ago was obtainable only at the expense of considerable gardening skill, effort and money, with the use of bedding plants. No little credit is due the hardy chrysanthemum and all who have worked to develop it.

E. S. H.

COVER ILLUSTRATION.

Tsuga Diversifolia.

The Japanese hemlock, Tsuga diversifolia, is a broad, pyramidal, shrubby tree, seldom exceeding a height of forty feet. Rehder, in his "Manual of Cultivated Trees and Shrubs," describes it as a tree which rarely reaches 100 feet in height. The majority of the specimens that I have seen have been shrubby in nature, with several stems from the base of the plant, and relatively low, as shown in the cover illustration.

Tsuga is the vernacular Japanese name for hemlock. The specific name, diversifolia, means variable foliage. The Japanese hemlock is native of Japan, as the common name implies, and it was introduced into cultivation in 1861.

The buds are small, flattened and slightly hairy, with ciliate bud scales. The twigs are pubescent and reddishbrown in color. The tree can be easily identified and distinguished from the Canada hemlock, Tsuga canadensis, by its entire, short needles. The needles of Japanese hemlock are about one-half inch in length and radiate outward in all directions from the stem. The leaves of the Canada hemlock are slightly toothed, longer and borne mainly on a flat plane, while the leaves of the Japanese hemlock are notched at the apex, dark green and glossy above, with narrow white bands below.

The Japanese hemlock is hardy in Ohio, but it makes a slow growth. It apparently does better in the east, where it grows more rapidly. Hemlocks prefer a moderately acid, rich soil, retentive of moisture, but one

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that drains well. They are tolerant of shade and also of full sun if kept out of sweeping winds, especially in hot climates.

The Canada hemlock prunes well, making a fine, large hedge, and, while I have not seen the Japanese hemlock used in this way, I presume that it would respond similarly, except that it would develop more slowly. Tsuga diversifolia will find its main uses in regions where it thrives as a small lawn specimen, for foundation planting at the corners of buildings and for mass plant-L. C. C.

PARTNER in C & C Nurseries, Pleasantville, N. J., Kenneth Carlson left for the army November 5.

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Tree Maintenance

By Noel Wysong

FIRST SALE OF CHRISTMAS TREES.

How many of the thousands who at this very moment are selling Christmas trees from street stands in every large city in the nation know how, where and by whom the Christmas tree industry was started? Not many, we will venture. When an industry begins as a one-man enterprise with no investment except a few days' labor, as seems to have been the case with the founding of the Christmas tree business, seldom do any irrefutable records exist, and with the passage of years it becomes increasingly difficult to separate fact and fiction. In the mass of material that has been written concerning Christmas trees, however, there is one article that bears the characteristics of authenticity. Here is the story:

Mark Carr, a woodsman of the Catskill mountains, having read of the Christmas celebrations in New York city where boughs and wreaths played an important part in the decorations, conceived the idea that there he might find a market for some of the stately young evergreens growing wild in the forests surrounding his modest mountain home. He expressed this thought to his wife, and she laughed at the idea. But with little or no work requiring his attention during the winter, he decided to carry out his scheme despite his wife's ridicule.

In mid-December, 1851, Mr. Carr cut two ox sled loads of young trees and with the help of his sons hauled them to Catskill village. From this point he proceeded alone with the trees to New York city. There he rented a small strip of sidewalk at a corner of Greenwich and Vesey streets for the sum of one silver dollar and displayed his trees for sale. He found that city people, glad to be relieved of the chore of going into the forests to cut their own trees, bought his readily. They were even willing to pay seemingly exorbitant prices, and his stock was soon exhausted. After spending a few days enjoying city life, Mr. Carr returned home hugely pleased with the success of his venture. The next year he was back with a larger load of evergreens; his example was followed by others, and the wheels of the Christmas tree industry began to gather momentum.

This account of the first sale of Christmas trees in the United States appeared in the December, 1895, issue of New England Magazine. It was written by Agnes Carr Sage; one is led to wonder whether Agnes Carr Sage, the author, might not be a descendant of Mark Carr, the woodsman. She evidently was familiar with New York city and with the Christmas tree industry of her day. "Now," she says, writing in 1895, "Carr's old corner commands a rental of \$100 for the week or two preceding Christmas." It is interesting to speculate what the rental on this location would be in 1951, fifty-six years later. She also says that the average price paid "today" to woodsmen who cut, bundle and deliver trees to the contractor is \$7 per 100, and that "white spruce undoubtedly is the ideal Christmas tree, while the black spruce holds second place; but they are very expensive, while a regular shapely fir often sells as high as \$10."

Considering the quantity of foodstuffs, clothing and other essentials that a dollar would buy in 1895 and its value today in similar items, and comparing the price of Christmas trees then and now, it appears that Christmas trees are less expensive now than they were fifty-six years ago. It also appears that the woodsmen, who are now said to receive a net profit of 50 to 75 cents per tree for cutting, bundling and delivering to a contractor, are receiving considerably better pay for their work than they did half a century ago.

Whether the Christmas tree industry began with Mark Carr and his two ox sled loads of evergreens, or originated in some other manner, is a matter of little concern to most of those engaged in the business today. Of much more consequence is the fact that the demand for Christmas trees continues to increase; that this year in the United States upward of 28,000,000 trees will be cut, and that these trees will have a retail value in excess of \$50,000,000.

N. W.

PLANT DAMAGE PROBABLE FROM NOVEMBER STORM

Recent issues of various horticultural magazines contained articles concerning the damage to trees and shrubs that resulted from the unusually cold weather that occurred in November, 1950. Competent plantsmen generally expressed the opinion that the damage was caused by actual freezing of the plant tissues before the wood was sufficiently hardened to endure normal winter temperatures.

Even as some of the articles were in the process of being published, another cold wave, more severe in some localities than the one of a year ago, was sweeping the northern half of the country and extending into the deep south. It arrived with

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snow flurries at Chicago November 3, and the temperature skidded to an official low 11.2 degrees Fahrenheit, with even lower temperatures being reported from the suburbs. Freezing temperatures were reported as far south as Alabama and South Carolina.

It seems highly probable that the injuries caused by the November, 1950, storm will be duplicated as a result of this year's November cold weather. In the Chicago area, at least, on November 3 the leaves of many trees and shrubs were nearly as green as in midsummer, and much of the twig growth was still succulent. Some truly unusual sights were presented the morning of November 4. The green leaves of a 30-foot silver maple apparently had begun to curl with the drop in temperature, later freezing rigidly. Dark green foliage of Chinese elm, frozen stiff and hard, glistened through a coating of ice. The leathery leaves of Viburnum lantana, still perfectly green, were as rigid as soldiers at attention.

It seems almost certain that such plants will show damage next year. If this prognostication is correct, the terminal branches of injured plants will develop small and scattered leaves, which will soon die, the small

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twigs and perhaps some of the lower branches will shrivel and die as summer advances, and in some cases entire plants may succumb. As was the case last year, evergreens probably will be damaged more severely than deciduous plants.

BEARS KILL TREES.

During the past fifty or more years, man, with his bulldozers, trenching machines, power saws and the like, has devised some new and efficient methods of injuring and destroying trees. It now appears that the black bears of the western forests, incited perhaps by man's example, have also been developing some new techniques that damage trees.

It has long been known that bears occasionally scratch or bite away pieces of bark from tree trunks, but these trees usually were located along game trails, the total amount of bark removed from an individual tree was generally small and the damage slight. Recently the bears have been extending their debarking operations.

A couple of years ago in Alaska an increasing number of trees scattered through the forest were found with the bark stripped from the ground line up to a height of seven or eight feet. In some cases the trees, principally white spruce of ten to eighteen inches in diameter, were completely girdled. Claw or tooth marks were plainly evident in the exposed wood. The number of trees so damaged often exceeded twenty per acre.

In Washington over eleven per cent of the Douglas fir trees from three to twenty-four inches in diameter on an 1,880-acre tract were stripped by bears, according to a report given by Charles Tulloch at the March, 1951, meeting of the Puget Sound section of the Society of American Foresters. Aerial and ground surveys of a 61,900-acre tract in Grays Harbor county revealed that 10,500 acres had losses from bear damage approximating thirty per cent of the stand.

From the redwood section of California come reports of even more spectacular bear damage. Young redwood trees from pole size to about thirty inches in diameter are the sufferers. Not content with stripping the bark just from around the base of the tree, the bears frequently strip the trunk completely from the ground to a height of fifty or more feet, or to a point where the diameter is about four inches and the trunk is not strong enough to support the weight of the bear. The damage has been so great in one area that in this locality a year-around

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6 to 9-in. trans., 2-yr 8.60 9 to 12-in. trans., 2-yr 12.00	75.00 100.00
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Juniperus chinensis neaboriensis 5.50	45.00	Thuja occidentalis lutea Geo. Peabody 5.00	40.00
Juniperus chinensis sargenti 5.05	45.00	Thuja occidentalis nigra 5.00	40.00
Juniperus chinensis sargenti glauca 5.50	45.00	Thuja occidentalis pyramidalis 5.00	40.00
Juniperus squamata meyeri	45.00	Thuja occidentalis rosenthali 5.00	40.00
Juniperus virginiana burki 5.50	45.00	Thuja occidentalis wareana (sibirica) 5.00	40.00
Juniperus virginiana canaerti	45.00	Thuja orientalis aurea nana 5.00	40.00
Juniperus virginiana elegantissima 5.00	45.00	Thuja orientalis conspicua 5.00	40.00
Juniperus virginiana glauca	45.00	Thuja orientalis elegantissima 5.00	40.00
Juniperus virginiana kosteriana 5.50	45.00	Tsuga canadensis pendula 6.00	50.00

Prices are F.O.B. Mountain View, N. J., packing additional at cost, Usual terms to those of established credit. No goods sent C.O.D. unless 25 per cent of amount is sent with order. All this material is listed subject to prior sale and crop conditions.

HESS' NURSERIES

MOUNTAIN VIEW, N. J.

open season on bears has been de-

It has not been definitely determined what the bears are seeking when they strip the bark away from the trees, nor why this type of damage has become increasingly common during the past few years. Since the damage occurs in the spring, the theory has been advanced that to the bears the new springwood cells just under the bark are like a sweet confection, or that in licking the freshly exposed wood they obtain some needed medication.

NEW member of the Stephenville State bank board of directors is Hugh Wolfe, Wolfe Nursery, Stephenville, Tex.

SUPERINTENDENT at the Missouri Botanical Garden, St. Louis, George H. Pring is recovering from a major operation.

RALPH PETRANEK, for two years with F. D. Clavey Ravinia Nurseries, Inc., Deerfield, Ill., is now with the Brown Deer Nurseries, Brown Deer, Wis. His father is field superintendent for the McKay Nursery Co., Waterloo, Wis., and he graduated in horticulture at the University of Wisconsin.

NO-DRI PROTECTIVE WAX EMULSION

Spray, paint or dip transplanted trees and shrubs to reduce loss of moisture and winter wind burn. 55-gal. drum.....\$3.00
30-gal. drum....\$83.25
5-gal. drum.....\$3.00
1-gal. ean\$3.00

RABBIT REPELLENT

Protect young nursery stock. Nonpoisonous, Applied by spraying or painting.

30-gal. drum....\$63.00 5-gal. drum....\$11.50 1-gal. can....\$3.00

BORER REPELLENT

Dogwood and many other ornamental trees should be protected from borer damage. Nonpoisonous, Simply brush it on as directed.

C. P. O. SOAP SPREADER Used extensively for twenty years to control seals insects, red spiders, lace bugs, aphils on orna-mental nursery stock. Safe for summer use. 55-gal. drum.....\$77.00 5-gal. drum.....\$9.25 30-gal. drum..... 45.00 1-gal. ean..... 3.25

All prices F.O.B. Philadelphia, Pa.

CRYSTAL SOAP & CHEM. CO., Inc. 6300 State Road, Philadelphia 35, Pa , Dept. AN.

FONTANESIA FORTUNEI

Makes good hedges. Very drought-resistant.
8 to 12 ins., S. \$2.50 per 100.
Send for list of interesting plants.

ALANWOLD NURSERY NESHAMINY, Bucks Co., PA.

DEL-MAR-VA NURSERIES

Growers of Quality Ornamental Stock. Send us your want list. DEL-MAR-VA NURSERIES LINCOLN, DEL. Phone: Milford, Delaware 4445

SPRING DELIVERY

80 Rhus Cotinus Rubrifolius, 2-yr., heavy 5.50
40 Prunus Subhirtella Pendula,

Cash with order, please. BRIMFIELD GARDENS NURSERY

245 Brimfield Rd. Wethersfield, Conn.

We grow good Evergreen Liners, Seedlings and Transplants

Ask for our Wholesale List.

The STEDMAN NURSERIES NEWFANE, N. Y.

POTTED LINERS FIELD LINERS GRAFTS

HEASLEY'S NURSERIES

DE

FINE PLANTS

TAXUS

5-yr., XX, field plants, sheared.

4000 Cuspidata, 10 to 15 ins. 4000 Hicksi, 18 to 30 ins.

1000 Vermeulen, 18 to 24 ins.

1000 Intermedia, 12 to 18 ins. 500 Cuspidata, heavy specimens, 2 to 2¹/₂ ft.

300 Vermeulen, heavy specimens, $2\frac{1}{2}$ to $3\frac{1}{2}$ ft.

JUNIPER

1000 Pfitzeriana, 3-yr., XX, field. 100 Pfitzeriana, 18 to 24 ins.,

heavy specimens. 50 Pfitzeriana, 21/2 to 3 ft.,

heavy specimens.

2000 Hetzi, 3-yr., XX, field. 100 Hetzi, 18 to 24 ins., heavy specimens

ARBORVITAE

Heavy, sheared specimens. 1200 American, 3 to 4 ft.; 4 to 5 ft.

HEMLOCK

Heavy, sheared specimens.

400 Canadensis, 3 to 41/2 ft.

ILEX

2000 Convexa, 15 to 18 ins.; 18 to 24 ins.

MAGNOLIA

300 Soulangeana, 3 to 5 ft.

EUONYMUS

400 Alatus, 2 to 21/2 ft. heavy. 350 Compactus, 2 to 21/2 ft., heavy.

You are cordially invited to visit our nursery and inspect these and other materials. You will find we are not selling price, but select nursery stock at a price you can afford to pay.

ANGELICA NURSERIES

Growers of fine plants.

3 mi. South of Reading, Pa., on Rt. 73 Phone: Reading 2-3983 R. D. I. MOHNTON, PA.

THUJA OCCIDENTALIS **COMPACTA ERECTA**

(NEW)

We offer this new variety in rooted cuttings; also estab-lished stock from 21/4-in. pots.

Write for descriptive folder in color.

THE WESTMINSTER NURSERIES WESTMINSTER, MD.



SHEPARD NURSERIES

Growers and Distributors of

ORNAMENTAL NURSERY STOCK

Truckloads only, no boxing,

60 acres growing.

OBITUARY

John Albrecht, Sr.

John Albrecht, Sr., founder of John Albrecht Nurseries, Narberth, Pa., died November 25 at Byrn Mawr hospital, Philadelphia. He was

In addition to operating the nursery at Narberth, Mr. Albrecht had been associated with the commercial florists' industry for seventy years and was proprietor of retail florists' shops at Ardmore, Pa., and Narberth.

Survivors include a son, Conrad J., and a grandson, Conrad J., Jr., both associated with John Albrecht Nurseries, and a second son, John, Jr., who operates John Albrecht's Flower Shop, Wayne, Pa.

James J. Kelley.

James J. Kelley, 87, owner of James J. Kelley & Son, New Canaan, Conn., died November 13 at his home. A native of New Canaan, Mr. Kelley had been tree warden of the city for twenty years. He was a charter member of the Connecticut Tree Protective Association.

Survivors are a daughter, Pauline Kelley, and a son, James J. Kelley,

Dr. Ulysses P. Hedrick.

Dr. Ulysses P. Hedrick, 81, internationally known as a horticulturist, educator, plant scientist, author and agricultural historian, died November 15 at Geneva, N. Y. He served with the New York agricultural experiment station, Geneva, from 1905 to 1937, the last nine years as director. He was director emeritus of the station since his retirement in 1937. His series of books on varieties of fruits, published from 1908 to 1925, is considered one of the substantial contributions to American horticulture.

Dr. Hedrick was born January 15, 1870, at Independence, Ia. He received his bachelor's and master's degrees from Michigan State College in 1893 and 1895. He received a doctor of science degree from Hobart College in 1913 and an honorary doctor of laws degree from Utah Agricultural College in 1938. He taught at Michigan State College, Oregon State College and Utah Agricultural College. He was head of the Michigan State department of horticulture from 1902 to 1905.

Immediate survivors include his widow, Mrs. Amy Plummer Hed-rick, Geneva, N. Y.; two children, Mrs. Guy Greene, Geneva, N. Y.,

HYDRANGEAS

French.	Dormant Plants.	Per 10	Per Inn
2-yr.,	3 or more canes		
2-yr.,	2 canes	. 4.50	35.00
P. G. 3-	yr., 18 to 24 ins	. 5.00	40 no

Send us your Want List for quotations on other varieties of Shrubs, Shade Trees, Evergreens, Nut Trees and Fruit Trees.

P. G. 3-yr., 2 to 3 ft......... 7.00

WAYNESBORO NURSERIES WAYNESBORO, VIRGINIA

LILACS

On own roots. Large plants, 5 ft. and up. Charles X, William Robinson, Pres. Grevy, Leon Gambetta, etc.

To plant now
AMERICAN ARBORVITAE, 10 ft. An assortment of heavy stock for landscaping.

RED LAKE RED CURRANTS, 2-yr. No. 1

SAMUEL FRASER NURSERY GENESEO, N. Y.

 ARBORVITAE V 6000 Pyramid, 4 to 5 ft. 3500 Dark Green E American, 4 to 5 ft.

 TAXUS G 1800 Cuspidata, R

15 to 18 ins. Write for List.

BERRYHILL NURSERY CO.

Box 696 Springfield, Ohio

FOR 52 YEARS

Our business has been growing

Rhododendrons Azaleas Perennials, Roses All Nursery Items

BOBBINK & ATKINS E. RUTHERFORD, N. J.

ENGLISH BOXWOOD

Propagated 15 years ago. Specimens up to 3½ and 4 feet. Perfectly healthy and symmetrically shaped. Inspection by prospective buyers invited.

J. M. DRUMM MERCERSBURG, PA.

DECORATIVE SPRAYS

Long and Short Needle Species of Pines and Spruces. Some with cones, 100-lb, bales or by the ton.

Akeley, Warren Co., Pennsylvania
On U. S. Rt. 62,
Omites south of Jamestewn, N. Y.
Phone: Russell (Pa.) 2395

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35.00 40.00

60.00 tations Trees,

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S Per 100 \$45.00



Soil Fumigation can be Profitable!

DOWFUME M

Controls weed seeds and soil pests

Users of this effective Dow soil fumigant realize substantial profits over and above the cost of treatment. Here's why: Gassing your indoor and outdoor seed beds with Dowfume MC-2 before planting kills most weed and grass seeds, grass stolons, roots of perennial plants, nematodes and soil insects throughout the tilled layer of soil. At higher dosages, certain soil-borne disease fungi are controlled.

Dowfume MC-2 contains Methyl Bromide for quick, thorough penetration and rapid aeration. Planting may be done within 48 to 72 hours after soil treatment. Ask your greenhouse supplier for Dowfume MC-2 and the sample equipment for its application. Or write our Fumigant Department for information about the low-cost trial kit available for those who would like to try Dowfume MC-2 on a trial basis.

THE DOW CHEMICAL COMPANY . MIDLAND, MICHIGAN



and Ulysses P., Jr., Penn Yan, N. Y.; a sister, Mrs. George Simons, Fort Lauderdale, Fla.; a brother, Dr. W. O. Hedrick, professor emeritus of economics, Michigan State College, East Lansing, and four grandchildren.

Prosper Ghysels.

Prosper Ghysels, superintendent of the azalea department of Bobbink & Atkins, East Rutherford, N. J., died November 16 after a brief illness. He was 69 years old.

Born at Nokere, Belgium, he was an azalea specialist all his life. His own nursery at Sonerghen, Belgium, was destroyed by bombs during World War I, and in 1920 the late Lambertus C. Bobbink invited him to come to the United States to supervise the growing of Indica azaleas for Bobbink & Atkins, at that time a new venture in this

Survivors include a daughter, Mrs. James Poole, Rutherford, N. J.; a son, Joseph, Clifton, N. J., and one grandson.

THIS fall J. R. Pullaman started in the landscape contracting business at 503 Forest street, Martinsville, Va.

EVERGREENS

300 acres of choice Evergreens ready for immediate resale.

Write for list.

GARDNER'S NURSERIES, Inc. ROCKY HILL, CONN.

CHARLES SIZEMORE Traffic Manager

319½ Georgia St., Louisiana, Mo.

Loss and damage claims against railroad and express companies collected.

Freight bills audited.

Past due notes and accounts collected.

Well known to the nurserymen of the country.

Reference: Bank of Louisiana.

PACHYSANDRA-

The ideal permanent evergreen ground cover plant for shady areas in all climates. Strong, well rooted. 1-yr.-old plants. \$8.75 per 100: \$35.00 per 100: \$35.00 per 100: \$000 or more. Prompt shipment anywhere.

PEEKSKILL NURSERY SHRUB OAK, N. Y.

OUALITY LINERS

Per 100

Red-flowering Dogwood, 6 to 10 ins., grafts (1-yr.)....\$60.00

French Hybrid Lilacs (named), & to 12 ins., grafts (1-yr.).... 30.00

Magnolia S. Nigra (red), to 15 ins., trans. (own-root). 75.00

POSSUM HOLLOW NURSERIES 6327 Magnolia St.

PHILADELPHIA 44, PA.



FINISHED STOCK & LINERS

LAIRD'S NURSERIES

Route 2 RICHMOND, VA.

5 mi, west of city on Broad St. Road

NORTHERN COLLECTED EVERGREENS

SHRUBS

WILLIAM CROSBY HORSFORD Charlotte, Vermont

PFITZER JUNIPER LINERS

In Plant Bands

6 to 8 ins., 141/2c; 8 to 10 ins., 20c; 10 to 12 ins., 26c ea.

Also Procumbens and Greek Juniper, 6 to 8 ins., 141/2c; 8 to 10 ins., 20c ea.

Ashford, Irish and Swedish Juniper, 8 to 10 ins., 20c ea.

Taxus Cuspidata and Capitata, 2-yr., 6 to 8 ins., 20c ea.

All prices for 300 or more. If total order is less than 300, prices are **16c**, **22c** and **28c**, instead of $14\frac{1}{2}c$, 20c and 26c ea.

Book your order for spring.

McININCH GREENHOUSES

ST. JOSEPH, MO.

LAKE'S

SHENANDOAH NURSERIES

Shenandoah, Iowa

Wholesale growers of a fine assortment of

GENERAL NURSERY STCCK

Your inquiries will be appreciated.

LINING-OUT TAXUS



MANY VARIETIES
Write for List.

EAGLE CREEK NURSERY CO.

NEW AUGUSTA, IND.

HEMLOCK Rhododendron — Kalmia Azalea

CURTIS NURSERIES

CALLICOON, N. Y.

Old English BOXWOOD

(Wholesale Only)
SELLING OUT. Specimens 20 x 16 ins. and
up; also very large specimens. No smaller stock
left. Special conditions of the c

BOXWOOD GARDENS
Mrs. R. P. Reyer High Point, N. C.

BUY WELCH IOWA NURSERY.

The Welch Nursery, Shenandoah, Ia., has been sold by its former owners, Homer and Marian Welch, to George Rose, Jack Foster and the Henry Field Seed & Nursery Co., Shenandoah, and has been incorporated as the Welch Nurseries, Inc.

The Welch Nursery, founded by the late J. C. Welch, brother of the late E: S. Welch, organizer of Mount Arbor Nurseries, has been in continuous business operation for seventy years and is the oldest retail nursery of the several located at Shenandoah. Its new owners plan to intensify its mail-order operations and drop the wholesale business carried on by its previous owners.

George Rose and Jack Foster will retain their positions with the Henry Field Seed & Nursery Co. and in addition will handle the operation of the Welch Nurseries, Inc.

For ease of control, it is planned to ship the Welch orders from the Field shipping department for the coming year, at least, although the mail-order office work will be carried on in the office of the Welch Nurseries, Inc.

The incorporators of the Welch Nurseries, Inc., bring to it a background of experience in the mailorder business. Jack Foster has been an advertising man all his adult life, beginning in 1926 with Sunshine Biscuits, Inc. He subsequently operated his own printing plate manufacturing business and worked with the Johnston Advertising Agency, Dallas, Tex., and the Rival Mfg. Co., Kansas City, Mo. During the war, he spent three years in the south Pacific with the navy. He presently is advertising manager of both the Henry Field organization and the Gurney Seed & Nursery Co., Yankton, S. D., having joined these concerns in July, 1947.

George Rose, a vice-president of the Field company in charge of its nursery operations as well as those of the Gurney organization, has spent his entire business life in the nursery industry. A native of Springfield, Mass., and a graduate of the University of Maine with a B. S. degree in horticulture, he spent several years in field operations and retail sales work for the Atwater Nurseries, Agawam, Mass. Following this he went to the Barnes Bros. Nurseries, Yalesville, Conn., where he was propagator and grower for seven years. He then moved to take over all operations, both sales and production, at the Ipswich, Mass., nurseries of Corliss Bros., Inc., subsequently joining the Field staff in

PIN OAK (Seerces) WHIPS

Three-year, field-grown transplants that will make finished stock in a hurry and not is be confused with seedlings. We think you will agree that the straight, well formed plants are an exceptional value at the following prices:

			Each Per 100 Per 10	60
12	60	18	ins\$0.13 \$0.	18
18	10	24	ins	15
24	to	36	ins	20

50 at the 100 rate; 500 or more take 1000 rate. We do not charge for packing.

FORREST KEELING NURSERY

ELSBERRY, MISSOURI

HARDY PLANTS Bulbs and Shrubs

"America's Finest"
Write for Trade List

Springbrook Gardens

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TAXUS and JUNIPERUS

Spreading and Upright
Finest Quality
Lining-out and B&B Stock

BROWN DEER NURSERIES

P. O. Box 1747 Milwaukee 1, Wis.

ORNAMENTALS

TREES SHRUBS
EVERGREENS

Wholesale growers of a general assortment for the best landscape plantings.

BRYANT'S NURSERIES

Princeton, Illinois



Wholesale growers of the best Ornamental Evergreens Deciduous Trees Shrubs and Roses

Write for our current trade list.

THE KALLAY BROTHERS CO.
Painesville, Ohio

Specializing in B&B Evergreens
BROADLEAFS and CONIFERS

Catalog on Request.

LINDLEY NURSERIES, Inc.
P. O. Box H GREENSBORO, N. C.

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KRIEGER'S WHOLESALE NURSERY

BRIDGMAN, MICHIGAN

Telephone 22

SMALL FRUITS

These prices cancel all previous lists and are subject to change without notice. 250 or over at 1000 rate. Boxing at cost, All prices

		Per 100	Per 1000	BLACKBERRIES Per	100 P	er 1000
Concord. 2-yr., No. 1			\$100.00	Eldorade. Transplants	7.50	
Concord. 1-yr No. 1	.20	10.00	80.00	Eldorado. No. 1, R.C		45.00
Niagara, 2-yr., No. 1		13.50	110.00	Alfred. Transplants	7.50	65.00
Niagara, 1-yr., No. 1	.35	11.00	90.00	Alfred. No. 1, R.C.	5.50	45.00
Catawba, 2-yr., No. 1		13.50	110.00	Early Harvest. Transplants	7.50	65.00
Catawba. 1-yr., No. 1		11.00	90.00	Early Harvest, No. 1, R.C	5.50	45.00
Fredonia. 2-yr., No. 1	.65	13.50	110.00	Ebony King (New). Transplants	17.50	150.00
Fredonia, 1-yr., No. 1		11.00	90.00	Ebony King (New). No. 1, R.C	12.00	100.00
Delaware, 2-yr., No. 1	.00 1	17.00	140.00	RED RASPBERRIES		
Delaware, 1-yr., No. 1	.65 1	13.50	110.00	Latham. Transplants	9.00	80.00
Caco. 2-yr., No. 1 2	.10 1	18.00	****	Latham. 1-yr., No. 1	7.50	65.00
Caco. 1-yr., No. 1 1	.45 1	12.00		Chief. Transplants	8.50	75.00
Van Buren. 2-yr., No. 1		00.08	250.00	Chief, 1-yr., No. 1	7.00	60.00
Van Buren. 1-yr., No. 1 2	.20 1	18.00	150.00	Sunrise. Transplants	8.50	75.00
Portland. 2-yr., No. 1		17.00	140.00	Sunrise. 1-yr., No. 1	7.00	60.00
Portland. 1-yr., No. 1 1	.65 1	13.50	110.00	Indian Summer, Transplants	9.50	85.00
CURRANTS				Indian Summer, 1-yr., No. 1	8.00	70.00
			130.00	St. Regis. Transplants	7.00	60.00
Wilder. 3-yr., heavy 1		5.00		St. Regis, 1-yr., No. 1	6.00	50.00
Wilder. 2-yr., No. 1 1		12.00	100.00			
Wilder, 1-yr., No. 1	05 1	8.00	140.00	BLACK RASPBERRIES		
Red Lake, 1-yr., No. 1		2.00	100.00	Cumberland, No. 1, tips	5.00	40.00
Bed rower I. Mr. Wo. Treesers I	.40 1	2.00	100.00	Logan. No. 1, tips	5.00	40.00
RED RHUBARB				Morrison. No. 1, tips	5.50	42.50
Canada Red. No. 1 divisions 4		00.00	350.00	PURPLE RASPBERRIES		
McDonald. No. 1 divisions 3		0.00	250.00	Sodus. Transplants	11.00	100.00
acronmer no. I divisions	.00 0	0.00	200.00	Sodus. No. 1, tips	6.50	55.00
HORSE-RADISH					0.00	00.00
	.50	3.00	20.00	DEWBERRIES		
		5.50	45.00	Lucretia, Transplants	7.50	65.00
	. 10	0.00	40.00	Lucretia. No. 1, R.C	5.00	40.00
BLUEBERRIES				ASPARAGUS		
Prices of Rancocas, Rubel, Jers	ew.					
		er	Per	Paradise and Washington		
		00	1000	3-yr., heavy		30.00
-yr., 9 to 12 ins., bearing age \$0.40 \$3			\$300.00	2-yr., No. 1		20.00
		7.50	450.00	1-yr., No. 1	2.00	15.00
		7.50	650.00	Whole Boots VICTORIA RHUBARB		
And an in the contract of the				1%-in. and up	8.00	75.00
	-	- 10 1	Per 100	1 to 11/4-in	5.50	50.00
GOOSEBERRIES	Per					
			\$35.00	% to 1 -in		
GOOSEBERRIES Downing. 2-yr., No. 1	\$	4.00		% to 1 -in	4.00 3.00	35.00 25.00

1944. He is a past president of the National Mail Order Nurserymen's Association and is now serving his second term as president of the Iowa Nurserymen's Association.

HOLLY AND MISTLETOE.

[Continued from page 15.]

gerous. Then Loki gave a sharpened mistletoe twig to Hoth, a blind god, who unintentionally killed Balder with it. The tears of Freya became the white berries of mistletoe.

Norsemen considered mistletoe a symbol of love and peace, however, and if a battle approached a woodland overhung with the plant, arms were put down and a truce was made by the opposing leaders' meeting beneath the mistletoe. The present custom of kissing under the mistletoe may be derived from this custom of truce, although some associate kissing under the mistletoe with the Roman festival of Saturn, and others connect it with a marriage rite.

Church decorations have never included the use of mistletoe in the Christian era, with one exception. At York Minster, England, an unusual Christmas ceremony has developed whereby mistletoe sprays are carried to the altar by the clergy and a proclamation is read that



SPECIMEN LANDSCAPE MATERIALS

Our Specialty

TAXUS

W. A. NATORP CO.

Cincinnati 29, Ohio

HOBBS

Fall, 1951 - Spring, 1952.

Thurlow Weeping Willow. Lombardy Poplar, Silver Maple, Norway Maple and B.D.F. Crab.

Evergreens, Shrubs. Peonies, Apple, Peach, Pear, Plum, Cherry and Apricot. 100,000 1-yr. Montmorency.

Oldest Nursery in Indiana. Established 1875.

C. M. HOBBS & SONS, Inc. BRIDGEPORT, IND.

NORTHERN-GROWN STOCK

Evergreen Liners Specimen Evergreens Ornamental Shrubs Fruit Trees

Plum Seedlings (Prunus Americana)

Philadelphus Minnesota Snowflake (Plant Patent No. 538). Send for list.

J. V. BAILEY NURSERIES

ST. PAUL 6. MINNESOTA

SHEARED SPECIMEN TAXUS

Spring, 1952

	3.	Each
Taxus Browni, 15 to 18 ins., B&B.		 \$ 5.00
Taxus Browni, 18 to 24 ins., B&B		 5.50
Taxus Cuspidata, 15 to 18 ins., B&B		 3.75
Taxus Cuspidata, 18 to 24 ins., B&B		 4.75
Taxus Cuspidata, 24 to 30 ins., B&B		 6.00
Taxus Cuspidata Capitata, 3 to 31/2 ft., B&B		 10.00
Taxus Cuspidata Capitata, 4 to 41/2 ft., B&B		 15.00
Taxus Cuspidata Capitata, 41/2 to 5 ft., B&B		 20.00
Taxus Hatfieldi, 15 to 18 ins., B&B		 3.50
Taxus Hatfieldi, 18 to 24 ins., B&B		 4.50
Taxus Hicksi, 15 to 18 ins., B&B		 3.50
Taxus Hicksi, 18 to 24 ins., B&B		 4.50
Taxus Hicksi, 2 to 21/2 ft., B&B		 5.50

Prices F.O.B. Onarga, Ill. Write for special prices on carload lots.

Representing T. G. Owen & Son, Columbus, Miss. Complete line of Evergreen Liners and B&B Stock.

We will appreciate receiving your want lists.

J. F. IRELAND SALES AGENCY

Phone: Onarga 257

ONARGA. ILL.

JUNIPERUS VIRGINIANA

stocky, grown from Winona, Minne-sota, seeds, which we have found produce plants less subject to cedar We have never seen a nicer bed of cedar seedlings.

Per 1000 4 to 5 ins.....\$23.00

500 plants take 1000 rate. We do not charge for packing.

FORREST KEELING NURSERY

Elsberry, Missouri

HYDRANGEA P. G. PRUNUS NEWPORT 1-ur. CONCORD GRAPES

Thorne Brewster

WILLOWBEND NURSERY

PERRY, OHIO

HENRY NURSERIES

Ingels Bros. HENRY, ILL.

Growers of General Nursery Stock.

See Evergreens in classified. Visitors Welcome.



EVERGREENS

Growers of Quality Evergreens Lining-out Stock a Specialty Write for Trade List

EVERGREEN NURSERY CO.

SHRUBS AND VINES FOR AMERICAN GARDENS

By Dr. Donald Wyman

By Dr. Donald Wyman
A planting list guide for nurserymen
and florists. Suggested lists are given
for various purposes, recommending
about 1110 species and varieties of
shrubs and vines now growing in North
America. A secondary list submits more
than 1700 shrubs and vines for consideration. Some 800 blooming dates
are listed in sequence. Colored maps
show hardiness zones of United States
and Canada. 100 halftones.

Price, \$7.50 postpaid

AMERICAN NURSERYMAN 343 S. Dearborn St. Chicago 4, Ill.

FOR PROMPT ACTION

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GROWERS EXCHANGE, Inc. FARMINGTON, MICH. P. O. Box 264

ROSES 30c each

Write for a variety list.

M. OLIVER TYLER, TEXAS grants pardon, liberty and freedom to all inferior and wicked people outside the city gates, to the four corners of the earth."

Monkish herbalists did not connect mistletoe with paganism, however, but declared that the cross of Calvary was made of it. They prescribed it as an antidote for every poison, a remedy for falling sickness and epilepsy and recommended that pieces be hung around the neck to ward off diseases. As a result, amulets were worn in France and rings of mistletoe were worn in Sweden.

Known as a parasite of the plant world, the mistletoe has never become too domesticated, and it has often weakened and sometimes killed its host tree. Its inconspicuous flowers are followed by waxy, white berries which the birds eat. A viscous substance often causes the seeds to cling to the bird's beak; so the bird helps to propagate the plant when it wipes its beak against the bark of other trees, where the wiped-off seeds germinate and cling to the bark by means of penetrating rootlike structures. This explains the plant's name derived from the Saxon word. mistle-lan, meaning different twig. Both deciduous and evergreen hosts to the mistletoe are numerous.

Most common of American forms is Phoradendron flavescens, or the Christmas American mistletoe, usually growing on sour gum and red maple trees. Thomas Nuttal, first director of the Harvard Botanical Gardens, named the parasite, because of its tree thief characteristics and its yellowish color. On poplars and willows of the southwest appears a variety called P. flavescens macrophyllum, or the bigleaf mistletoe, while P. villosum, the Pacific mistletoe, grows along the Pacific coast, where it prefers the oak for its host. Other host preferences are indicated by P. californicum, the mesquite mistletoe; P. densum, the cypress mistletoe, and P. junipericum, the juniper mistletoe.

The mistletoe is perishable and extremely susceptible to frost when cut. Leaves and bark of a cut spray become an odd golden color, but the growing plant has leaves of pale, gray-green color that are thick, dull and rubberlike in appearance.

In addition to the holly and mistletoe, the Christmas tree stands among the most legended of plants. A familiar story of the origin of the Christmas tree is the version about St. Wilfred who, standing among a crowd of converts, cut down a giant oak tree to indicate that they no longer were heathens and had abanMAN

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HARDY NORTHERN STOCK JEWELL NURSERIES. Inc.

Write for Price List.

Box 457, LAKE CITY, MINN.

doned the Druidic practice of worshiping the oak. When the tree fell, it split into four pieces, and a young fir tree grew from its center. Wilfred explained to the converts that it was the wood of peace, a sign of endless life. He implored them to accept it as their holy tree and to surround it with gifts and rites of

According to the Viking story of the first Christmas tree, the Lord sent his three messengers, faith, hope and love, to light it. Seeking a tree that would be as high as hope, as wide as love and one that bore the sign of the cross on every bough, they chose the balsam fir. Scandinavian legend describes a tree which sprang from the soil where two lovers died. Mysterious lights which no wind could extinguish were seen from its branches on certain nights of the Christmas season, and storytellers say it was the first lighted

Some legends attribute the Christmas tree to the first man and woman. When Adam left the Garden of Eden he took with him a twig from the tree of forbidden fruit, and the tree later became the Christmas tree and wood for the holy cross. In another version, the fir tree is the tree of life, which once bloomed and fruited freely. Then Eve plucked its fruits and it became shrunken into tiny needlelike leaves, not blooming again until Christ was born.

CONSTRUCTION started this month on a garden store building of concrete blocks and stone front on the highway at the Ruedlinger Nursery, Minneapolis, Minn. Plans are for a lath house and salesyard adjacent.

ANNOUNCEMENT has been made by owners John W. Hunter and Andrew J. Hart of the opening of Hart & Hunter Landscape Co., 8340 Florida street, Baton Rouge, La. They formerly managed the Mc-Kee Nursery Garden Center, Baton Rouge.

SHADE TREE SPECIALS

Per 10	Per 100
Bolleana Poplar, 11/4 to 11/2-in. cal	\$160.00
Bollegng Poplar, 11/2 to 2 -in, cal 20,00	185.00
Bolleang Poplar, 2 to 21/2-in. cal. 22.50	200.00
Lombardy Poplar, 6 to 8 ft	35.00
Niobe Weeping Willow, 5 to 6 ft. 6.00	55.00
Niobe Weeping Willow, 6 to 8 ft. 8.50	80.00
Niobe Weeping Willow, 8 to 10 ft	100.00
Wisconsin Weeping Willow, 5 to 6 ft. 6.00	55.00
Wisconsin Weeping Willow, 6 to 8 ft. 8.50	80.00
White Elm, 5 to 6 ft 6.50	60.00
White Elm, 6 to 8 ft	80.00
French Pussy Willow, 4 to 5 ft	50.00
French Pussy Willow, 5 to 6 ft 7.00	65.00

FLOWERING SHRUB SPECIALS

		-				-	 -		_	_	-		
Hydrangea P.	G.,	12 to	18	ins.	 		 				3.	.20	28.00
Hydrangea P.	G.,	IB to	24	ins.	 		 		 		. 4.	.20	38.00
Hydrangea P.	G.,	2 to 3	ft.		 		 		 		5.	.00	45.00
Hydrangea P.	G.,	3 to 4	ft.		 				 		6.	.00	55.00
Snowball, 18 t	to 24	ins			 		 		 		. 4.	.50	40.00
Snowball, 2 to	0 3	ft			 		 	****	 		5	.50	50.00
Snowball 3 to	A 64										7	nn	65.00

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1-year from dis-eyed cuttings

Well known Welch strain

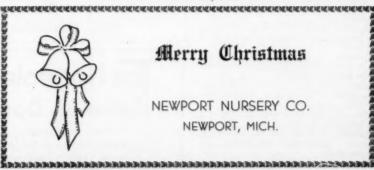
Grown in Virginia \$35.00 per 1000

CRON'S HARDY BOXWOOD

12 to 15 ins., B&B, \$1.75 each 15 to 18 ins., B&B, 1.95 each

F. O. B. Eastville, Va.

ILGENFRITZ NURSERIES, Inc. MONROE, MICH.



Merry Christmas

NEWPORT NURSERY CO. NEWPORT, MICH.

Coming Events

MEETING CALENDAR.

January 2 to 4, eastern regional convention, Hotel New Yorker, New York. January 7, Missouri State Nurserymen's Association, Hotel Muehlebach, Kansas City, Mo.

January 7, Kansas Association of Nurs-erymen, Town House hotel, Kansas City,

January 7 and 8, Oklahoma State Nurs-ymen's Association, Biltmore hotel, Oklahoma City.

January 7 to 9, American Pomological Society, Hotel Roanoke, Roanoke, Va. January 8, Massachusetts Nurserymen's Association, Hotel Kenmore, Boston.

January 8 and 9, Western Association of Nurserymen, Hotel Muehlebach, Kansas

January 8 to 10, North Carolina Association of Nurserymen, North Carolina

State College, Raleigh.

January 8 to 10, Indiana Association
of Nurserymen, Purdue University Student Union Building, West Lafayette.

January 10, Connecticut Nurserymen's

Association, Waverly Inn, Cheshire.

January 10, Maryland Nurserymen's

Association, Emerson hotel, Baltimore. January 10 to 12, Iowa Nurserymen's Association, Hotel Kirkwood, Des Moines.

January 13 and 14, American Associa-tion of Nurserymen board of directors, Hotel La Salle, Chicago. January 14, National Landscape Nurs-

erymen's Association, Hotel La Salle, Chi-

January 14, National Mail Order Nurserymen's Association, Hotel LaSalle, Chi-

January 14, All-America Rose Selections, Hotel La Salle, Chicago.

January 15 to 17, Illinois State Nurserymen's Association, Hotel La Salle, Chicago.

January 21 to 23, short course for arborists, landscape gardeners and nurserymen,

Neil House, Columbus, O. January 22 and 23, Kentucky State Nurserymen's Association, Lafayette hotel, Lexington.

January 23 to 25, Ohio Nusserymen's Association, Neil House, Columbus.

January 24 and 25, Canadian Associa-tion of Nurserymen, Royal York hotel; Toronto, Ont.

January 25, Western New York Nurs-ymen's Association, Hotel Sheraton, ervmen's

January 27 to 29, Virginia Nursery-men's Association, Hotel John Marshall, Richmond.

January 30 and 31, Pennsylvania Nurs-Association, Warwick hotel, Philadelphia.

January 30 and 31, Oregon Association of Nurserymen, Heathman hotel, Port-

January 30 to February 1, Tennessee

State Nurserymen's Association, Hotel Andrew Jackson, Nashville.

January 30 to February 1, Michigan Association of Nurserymen, Hotel Statler,

January 31, New Jersey Association of Nurserymen, Hildebrecht hotel, Trenton. February 4 to 6, New England Nurs-Association, Hotel Kenmore, ervmen's

Boston, Mass. February 13 to 15, Midwestern chapter of the National Shade Tree Conference, Hotel La Salle, Chicago.

February 20, Rhode Island Nursery-men's Association, Johnson's Hummocks

grill, Providence.

March 20 to 22, American Camellia Society, Cavalier hotel, Virginia Beach,

EASTERN CONVENTION.

Board meetings of the New York State Nurserymen's Association and region 1 of the American Association of Nurserymen have been planned for the opening day of the eastern regional nurserymen's convention, to be held January 2 and 4 at Hotel New Yorker, New York. A cocktail party is scheduled for the evening.

The New York association will hold a business meeting Thursday morning, January 3. General sessions will begin with reports on New York state horticultural schools and experiment stations. Speakers will include Dr. A. J. Heinicke, director, New York agricultural experiment station, Geneva; Dr. A. M. S. Prid. ham, department of floriculture Cornell University, Ithaca; Carl Wedell, Long Island Agricultural and Technical Institute, Farmingdale, and Robert J. Kessler, New York Agricultural and Technical Institute, Alfred University, Alfred.

Following an illustrated talk by Dr. George H. M. Lawrence, Bailey Hortorium, Ithaca, N. Y., on "Impressions of Nurseries and Nursery. men in Europe," conventioners will have a free half hour in which to visit exhibits of the allied trades. Luncheon speaker will be F. K. Doscher, vice-president, Lily Tulip

Cup Corp.

Homer K. Dodge, Landscape Service Co., Framingham, Mass, member of the executive committee for regoin 1 of the National Land. scape Nurserymen's Association, will report on N. L. N. A. activities and serve as chairman of the afternoon session. "Experience with Full Guarantee" will be described by Charles Godin, Adams Nursery, Westfield, Mass., and Seth L. Kelsey, Kelsey-Highlands Nursery, East Boxford, Mass., will present "Rea-

COME TO KANSAS CITY

31st annual meeting of the

MISSOURI STATE NURSERYMEN'S ASSOCIATION

January 7, 1952, Hotel Muehlebach

2 P. M. Meeting

5 P. M. Cocktail Party

Sponsored in conjunction with Kansas City Association of Nurserymen.

Everybody Welcome!

WESTERN ASSOCIATION of NURSERYMEN

January 8 and 9, Hotel Muehlebach, Kansas City, Mo.

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Azaleas, Rhododendrons, Magnolias, Peonies, Ornamental Trees and Shrubs, Perennials - Quality Stock in All Leading Varieties. Trade catalog on request.

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sons for Not Giving Full Guarantee."
Charles Boardman, Farr Nursery
Co., Weiser Park, Pa., will discuss
"The Handling of Complaints." Fred
J. Leary, New York Telephone Co.,
will cover a more limited topic, "The
Use of Advertising to Reduce Com-

plaints."
"Services Rendered and How Charges for Them Are Made" will be discussed by J. Franklin Styer, Styer's Nurseries, Concordsville, Pa. Allan Dalsimer, Dalsimer Florist, Inc., Cedarhurst, N. Y., will talk on "Landscape Design Services and How They are Handled." Open discussions will be held after each two addresses. Thursday evening Dr. George S. Avery, director, Brooklyn Botanical Garden, will serve as moderator at an informal panel discussion of "Plant Materials and Their Uses."

Members of region 1 of the American Association of Nurserymen will hold a general business meeting Friday morning. National officers and chairmen who plan to attend include John B. Wight, president; Peter Cascio, vice-president; Richard P. White, executive secretary; Howard P. Quadland, publicity director; Howard C. Taylor, chairman of the market development and publicity committee, and Truman Fossum, who will report on the nursery survey. Guest speaker at the final lunchcon will be a representative of the British Nurserymen's Affiliates.

The registration fee at the convention will be \$12, but those who register in advance with the convention secretary, Mrs. Marie Enberg, Rosedale Nurseries, Eastview, N. Y., will save \$2 on the fee.

ILLINOIS PLANS COMPLETE.

Program plans are now complete for the annual convention of the Illinois State Nurserymen's Association, to be held January 15 to 17 at Hotel La Salle, Chicago. An additional speaker secured for the opening session, starting at 1:30 p. m. Tuesday, is Reuel W. Elton, general manager, American Trade Association Executives, Washington, D. C., whose address will be entitled "Through the Looking Glass."

Officers of the American Association of Nurserymen will be the other featured speakers that afternoon. John B. Wight, president, will discuss "Working for You — The A. A. N.," and Richard P. White, executive secretary, "Your Business and the A. A. N.—Today and Tomorrow." The annual meeting of the Illinois chapter of the A. A. N. will be held Wednesday morning, Janu-

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Ea	ach
5000 Juniperus Pfitzeriana, 15 to 18 ins	.75
1250 Juniperus Excelsa Stricta, 15 to 18 ins	.00
	.50
1600 Juniperus Excelsa Stricta, 3 to 4 ft	.65
2000 Juniperus Andorra, 15 to 18 ins	.00
	.50
	.15
	.00
	.75
1500 Bonita Arborvitae, 18 to 24 ins	.50
	.75
1000 Berckmans Arborvitae, 15 to 18 ins	.10
4000 Nandina Domestica, 15 to 18 ins.	.85
	.10
2000 Nandina Domestica, 24 to 30 ins	40

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CUT-LEAF WEEPING BIRCH

(Betula Laciniata on White Birch) Well branched, very fibrous roots.

			Eac	hr	Per 10	Per 100	Per 1000
2	to	3	ft		.\$1.00	\$0.80	\$0.50
3	to	4	ft		. 2.00	1.80	.80
4	to	5	ft		. 2.25	2.10	1.00
5	to	6	ft		. 2.50	2.30	1.70
6	to	7	ft		. 2.60	2.50	1.90
7	to	8	ft		. 2.80	2.70	2.00

NEW OTTAWA FLOWERING CRABS

Amisk, pink; Arrow, purple; Geneva, dark red; Makamik, rose; Scugog, purple; Sissipuk, rose and white. All trees well branched.

					Per 100	
18	to	24	ins	\$0.55	\$0.50	\$0.40
2	to	3	ft	70	.65	.55
3	to	4	ft	85	.80	.70
4	to	5	ft	. 1.00	.95	.85
			ft		1.10	1.00
6	to	8	ft	. 1.35	1.25	1.15

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Shrubs and Trees including liners. Rhododendrons and Azaleas Hardy Perennials Peonles

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Camellia Sasanqua. Annette. Cinderella. Cleopatra. Maiden's Blush. Rosea. Texas Star. \$ to 12 ins., liners. \$ 12 to 18 ins., liners. \$ 25.00 18 to 24 ins., liners. \$ 30.00
Magnolias. Rustica Rubra. Soulangeana. 8 to 12 ins., 2-yr. liners 30.00 12 to 18 ins., 2-yr. liners 35.00 18 to 24 ins., 2-yr. liners 40.00
Soulangeana Nigra. Lillifora. 8 to 12 ins., 2-yr. llners
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Ginkgo Biloba. 6 to 8 ins., liners
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Dilicium Anisatum. 8 to 12 ins., liners. 12.50 12 to 18 ins., liners. 15.00
Viburnum. Macrophyllum. Odoratissimum. 6 to 8 ins., liners. 10.00 8 to 12 ins., liners. 12.50
The above are excellent liners, heavily rooted and well grown; sure to please.







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- Cold Storage
- e Now Booking
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CO-OPERATIVE ROSE GROWERS YLER, TEXAS

TWO-YEAR, FIELD-GROWN ROSES

Write for wholesale list, Hybrid Teas, Polyanthas and Climbers. Good roses since 1920. Ask anyone we serve. ROSE LAWN NURSERIES WINNSBORO, TEXAS

With That Wonderful Root System Headquarters for HARDY MUMS AND PHLOX. Ask for our Perennial Catalog. WELLER NURSERIES CO., Inc.

Leading Perennial Growers HOLLAND, MICH.

WELLER'S PERENNIALS

ary 16, instead of Thursday afternoon, as previously anounced. At the Wednesday luncheon Maj.

Norman Imrie, conservation editor, Columbus, O., will talk on "Uncle Sam and the Prodigal Son." Frank P. Johnson, Kewanee, Ill., guest speaker at the Thursday luncheon, will discuss "Window Trimmings," and Arie F. den Boer, superintendent of waterworks, Des Moines, Ia., will give an illustrated talk on "The Flowering Crab Apples." The ladies' luncheon will be held Wednesday

At the session Wednesday afternoon Howard P. Quadland, publicity director of the A. A. N., will discuss "Plant America." "The New Horticultural and Drug Plant Experiment Station at Lisle, Ill." will be described by Dr. Ralph T. Voight, director of the station, and by Dr. C. J. Birkeland, head of the department of horticulture at the University of Illinois.

N. L. N. A. CONFERENCE.

Merchandising will be the program theme at the midwinter conference of the National Landscape Nurserymen's Association to be held January 14 at the Hotel La Salle, Chicago. The morning session will feature a discussion of "Direct-mail Selling as an Aid to Your Sales-men," by Kimball D. Andrews, Andrews Nursery Co., Faribault,

A talk, entitled "Telephone Techniques as a Sales Aid," by Inez Spoffard, secretary, M. J. Hunziker & Sons, Niles, Mich., will open the afternoon session. Following as featured speakers will be C. E. Pfister, Mundelein, Ill., president of the American Rose Society, on "Doing for Your Customers," and Neal R. Rohlfs, Neal Rohlfs Nursery Garden Center, Davenport, Ia., on "Mer-chandising and Salesyard Tech-niques that Seem to Work."

Secretary-treasurer Lloyd G. Platt, Davenport, Ia., has announced that the program will be extended one hour if "a speaker is found who can tell us how to get more done in less time with less help, so that we can make more money with less investment.

MISSOURI PROGRAM SET.

Ralph A. Brenizer, district manager, Dun & Bradstreet, Inc., will be the featured speaker at the meeting of the Missouri State Nurserymen's Association January 7 at the Muehlebach hotel, Kansas City. His subject will be "Prospects of Eco-

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Hydrangea Paniculata

Mydrangea Paniculata
Grandiflora. Per 100 Per 100 5 to 12 ins., I-yr., C \$ 7.00 \$ 65.00
5 to 12 ins 1-vr C \$ 7.00 \$ 45m
12 to 18 ins., I-yr., C 11.00 100.00
18 to 24 ins., 2-yr.,
well br 15.00
Cornus Florida.
6 to 12 ins., S 3.00 25.00
12 to 18 ins., S 4.00 35m
18 to 24 ins., S 5.00 45.00
Each
2 to 3 ft., well br\$0.20
3 to 4 ft., well br
4 to 5 ft., well br
NATIVE SHRUBS AND EVERGREENS
Tsuga Canadensis. Per 100 Per 1000
3 to 6 ins., S\$1.25 \$10.00
6 to 9 ins., S 1.75 15.00
9 to 12 ins., S 2.50 20.00
12 to 18 ins., S 4.00 35.00
18 to 24 ins., S 6.00 55.00
Hex Onece

Ilex Opaca. Rhododendron Maximum. Kalmia Latifolia. 3 to 6 ins., S. 2.00 6 to 9 ins., S. . . . 3.00 9 to 12 ins., S. . . . 4.00 25.00 35.00 12 to 18 ins., S..... 5.00

Cercis Canade Tilia American Acer Rubrum.	nsi a.		* *		,	9				****
Acer Saccharu 4 to 5 ft., well 5 to 6 ft., well 6 to 8 ft., well	m. br. br.				 					.45
Azalea Calend Azalea Nudifica 12 to 18 ins., w 18 to 24 ins., v	ula ra.	ce bi	8.							.15

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AMERICA'S BEST SOURCE HARDY PLANTS



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MAGNOLIA SOULANGEANA

Per 10	Per 100
2 to 3 ft., BR\$12.50	\$110.00
3 to 4 ft., BR 20.00	175.00
4 to 5 ft., BR 27.50	250.00
2 to 3 ft., B&B 16.00	140.00
3 to 4 ft., B&B 24.00	210.00
4 to 5 ft., B&B 32.00	275.00
5 to 6 ft., B&B 40.00	350.00
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Heavy, field-grown stock, well budded. Prices F.O.B. our nursery. B&B stock loaded on your truck or for truck or carload delivery. BR stock packed for shipment at no extra cost.

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ACER RUBRUM, Red Maple.
6 to 12 ins., seedlings\$25.00
12 to 18 ins., seedlings 30.00
18 to 24 ins., seedlings 40.00
2 to 3 ft., seedlings 60.00
The above is not junk; it is first class.
VINCA MINOR.
Medium clumps 30.06
Small clumps 20.00
Satisfaction guaranteed or money back.

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For spring, 1952, delivery, from 21/2-in. pots on Virginiana understock. We are grafting Juniperus Virginiana Canaerti, Glauca, Pyramidiformis (Dundee), Burki and Keteleeri.

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Two-year, Field-grown
Write us today for list of

Write us today for list of varieties and prices.

OZARKS PLANT FARMS SPRINGFIELD, MO.



nomic Conditions, Present and Future." Association business will complete the program.

WEED CONTROL MEETING.

The sixth annual meeting of the Northeastern Weed Control Conference will be held January 2 to 4 at the Hotel New Yorker, New York. All groups in the northeastern United States concerned with weed control problems will have a part in the program. Along with the latest weed control findings by agricultural experiment stations and industry, current problems such as ragweed, marijuana and poison ivy eradication and weed control along highways, railroad right of ways and power lines will receive special emphasis.

POMOLOGICAL SOCIETY.

The 1952 annual meeting of the American Pomological Society is to be held in joint session with the fifty-sixth annual meeting of the Virginia State Horticultural Society. The dates are January 7 to 9, and headquarters will be the Hotel Roanoke, Roanoke, Va.

SET MASSACHUSETTS DATE.

The annual meeting of the Massachusetts Nurserymen's Association will be held January 8 at the Hotel Kenmore, Boston.

CONNECTICUT SPEAKER.

Edward N. Allen, lieutenant governor of Connecticut, has been added to the roster of speakers for the annual meeting of the Connecticut Nurserymen's Association to be held at the Waverly Inn, Cheshire, January 10.

IOWA CONVENTION.

The Iowa Nurserymen's Association will hold its annual convention at the Hotel Kirkwood, Des Moines, January 10 to 12.

RHODE ISLAND DATE.

The winter meeting of the Rhode Island Nurserymen's Association will be held February 20 at Johnson's Hummocks grill, Providence, according to Anthony Williams, secretary.

VACATIONING in Florida until April 1 is the Lynn Rogers family, operators of the Lyndale Nursery, St. Charles, Mich.

SHRUBS — COLLECTED
Azalea Calendulacea,
Red Flame Azalea. Per 1000 12 to 18 ins
12 to 18 ins \$40.00
18 to 24 ins 50.00
Hydrangea Arborescens.
Smooth Hydrangea,
15 to 24 ins
2 4 2 54 40.00
2 to 3 ft
2 to 2 ft lines Red Chokeberry,
2 to 3 ft., liners
2 to 3 tr., 3 stems up, \$20.00 per 100.
Coryllus Americana, American Hazelnut,
12 to 24 ins., liners 25.00
Rhus Aromatica, 3 to 5 stems,
2 to 3 ft., \$25.00 per 100.
TREES — COLLECTED
Also Collected Hardy Native Ferns,
Vines and Day Lily Bulbs. Acer Rubrum, Red Maple, Per 1000
Acer Rubrum, Red Maple, Per 1000
12 to 18 ins., sdlgs\$20.00
18 to 24 ins., sdlgs 30.00
2 to 3 ft., sdlgs 40.00
Liriodendron Tulipifera, Tulip Tree,
12 to 18 ins
18 to 24 ins
2 to 3 ft
Canadian Hemlock,
18 to 24 ins., sdlgs 40.00
2 to 3 ft., sdlas
2 to 3 ft., sdlgs 50.00 llex Opaca, American Holly,
llex Opaca, American Holly,
6 to 12 ins., sdlgs 20.00
12 to 18 ins., sdlgs 30.00
Juniperus Virginiana,
6 to 12 ins., sdlgs 20.00
12 to 18 ins., sdlgs 30.00
18 to 24 ins., sdlgs 40.00
Hardy Native Ferns, 8 varieties 20.00
Day Lily Bulbs, orange color 20.00
Lonicera Halliana,
Hall's Japanese Honeysuckle,
Hanni liness 800
Heavy, 3 stems up
Terms and conditions of sale: All or-
ders under \$25.00 must be accompanied
by cash. All orders of \$25.00 and up will
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Your orders will be filled with stock of
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Deciduous Magnolias

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MUST MOVE WITHIN 60 DAYS

2591	Pfitzer Juniper. Each 18 to 24 ins., 24 to 30 ins., 30 to 36 ins. 75 per cent are 24 to 30 ins. and 30 to 36 ins \$3.00
600	Ilex Burfordi, 12 to 18 ins., bushy 1.65
100	Pyramidal Arborvitae, 3 to 4 ft 2.50
300	Chinese Pyramidal Juniper, 3 to 4 ft 3.00
300	Greek Juniper, 24 to 30 ins
500	Berckmans Arborvitae, 12 to 18 ins 1.75

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Nation's Leading Source Write today for quotations.



SEEDS

Collector of Northern Conifer Seeds

K. J. BRADEN

Box 187 MILTON, NEW HAMPSHIRE

REVIEW OF WOODY PLANT PROPAGATION.

[Continued from page 11.]

ber square, about five-sixteenths of an inch thick and one and eleven-sixteenths inches wide, was fastened on the cutter head with the concave side up, and we now have a durable and satisfactory substitute for the original cutters. During the past several months we have cleaned a wide variety of seeds without injury. We figure that the machine paid for itself the first day.

Root Development.

When I was a young boy my father taught me to remove the tip of the taproot in transplanting small seedlings of such annuals meschscholtzia and the true poppies. When this tip is removed the normally downward development is modified and such plants will develop comparatively good fibrous roots.

In recent years I have expense.

do

In recent years I have experienced considerable difficulty in securing nut tree seedlings suitable for use as potted grafting stocks. This difficulty has been particularly bothersome with black walnut, in which it is difficult to accommodate the usual long taproot in a pot of reasonable size. When the roots are pruned severely, survival of the seedlings is likely to be poor. I have found, however, that it is quite possible to produce a well branched root on a year-old Juglans nigra seedling (see figures 2 and 3).

On January 30, 1951, we stratifed a quantity of cleaned Juglans nigra seeds by planting them close together in flats containing screened sphagnum. Since we wanted to avoid crooked stems, we placed the seeds on their sides with the sutures up. The flats were then placed in a cold house which is kept at about 40 degrees Fahrenheit during the winter

By the following May 17 many of these seeds were germinating, and we then selected 100 seeds which had roots about one inch long and upon which young shoots had not yet developed. On some of these seeds we snipped off about one-half inch of the young root and we left others as controls. Both snipped plants and controls were then planted in a row out of doors. They were set about eight inches apart and four deep. The plants grew well during the summer, and we could see no substantial differences in their aerial development. There was, however, an important difference in root development.

In our best lot of forty snipped seeds, thirty-seven survived until N.

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ARP NURSERY CO.

Peter Lui strain seedlings and grafted Nanking, Meiling, Abundance and Kuling varieties. Write for information and prices if you want quality trees at moderate cost.

Leeland Farms

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LEESBURG, GA.

We Offer

OUR USUAL SUPPLY OF NURSERY STOCK

Apple Plum Peach Pear Cherry Apricot Pecans Grapes Figs

June Bud Peach Japanese Persimmon Ornamental and Shade Trees

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DECHERD, TENN. Nicholson Bros.

PECAN TREES Wight's is your best source for young,

pecan trees—the kind that really makes satisfied customers. Ask for trade prices. WIGHT NURSERIES, CAIRO, GA.

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30,000 Potted Taxus Liners

1, 2 and 3-year. Weigela Eva Rathke, transplants. Viburnum Rhytidophyllum.

HUMPHREYS LANDSCAPE SERVICE MT. STERLING, KY.

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VENNARD'S NURSERY BIOUX CITY, IA.

autumn. Most of these developed root systems as illustrated on the right in figure 2, although several produced only horizontal or nearly horizontal roots, as illustrated in figure 3. There were only two taproots in this lot, while the corresponding controls were nearly all tap-rooted.

producing method of branched roots certainly requires more hand labor than the usual practice of root-pruning older seedlings with heavy machinery. I should think, however, that it would be much more economical than rootpruning with spades. For our pur-poses at the Arnold Arboretum, the advantage of a well branched root system on a one-year seedling is the most important consideration. The feasibility of this method in commercial nurseries is left to the judgment and ingenuity of the grower.

Soil Substitutes.

I have already reported my results in growing azalea transplants in a mixture of Styrofoam A and screened sphagnum moss in the January 1, 1951, issue of the American Nurseryman. I have brought along two plants of true American chestnut, both of which were grown by first planting seeds in flats of pure sphagnum moss. The seedlings were later transplanted into 4-inch pots, some in potting soil and some in a mixture of sphagnum moss and Styrofoam A. Samples of this material may be obtained from R. N. Kennedy, Plastics Technical Service, Dow Chemical Co., Midland, Mich.

When these seedlings were transplanted in February, 1951, the mixture was watered with a solution containing traces of all the important minor elements together with a solution made by dissolving one level teaspoon of 5-8-7-1 (magnesium) in one gallon of water. This 5-8-7-1 application was repeated in March and early September. The potting soil was well fertilized during its preparation.

Even with this somewhat inadequate nutrient program, there was at the end of the first growing season no appreciable difference between the growth of the plants in the mixture and that of the corresponding plants grown in fertilized soil

There may be profitable possibilities for mail-order nurserymen in growing certain large-seeded woody species by direct sowing in pots containing Styrofoam A and screened sphagnum moss. This is perhaps particularly true in relation to species

[Concluded on page 55.]



Our 67th Year **FRUIT TREES**

All upland-grown and inspected for trueness to name. Std. and Dwarf Apple, 1 and 2-yr. Std. and Dwarf Pear, 1 and 2-yr.
Plum, 1 and 2-yr.

Peach, 1-yr. Sweet and Sour Cherry-Quince. l and 2-yr.
Also a good assortment of

Shrubs, Shade Trees, Evergreens. Write for our

Wholesale Price List. We are also buyers of many items-

Ornamentals, Roses, etc. We would be pleased to receive your Wholesale Trade List.

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3/4 to 1-inch. 1 to 11/4-inch. 11/4 to 11/2-inch.

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Certified BLUEBERRY PLANTS

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CALIFORNIA ASSOCIATION OF NURSERYMEN

ELMER J. MERZ, Executive Secretary
304 MITAU BUILDING SACRAMENTO 14, CALIF.

LOS ANGELES PLANS.

Under the capable leadership of newly installed President David Cunningham, Descanso Distributors, Inc., La Canada, the Los Angeles chapter of the California Association of Nurserymen is planning a full year of activity climaxed by the 1952 state convention, which will be held at Avalon, Santa Catalina island, September 16 to 18.

This gathering will be organized and conducted by all the southern California chapters under the general chairmanship of F. C. Tomlinson, Select Nurseries, Whittier.

The vice-president and program chairman, Robert E. Weidner, Buena Park Greenhouses, Buena Park, has scheduled some fine programs for the regular monthly meetings, with the annual Christmas party in December and the camellia meeting in February as the highlights.

Installed in October with Mr. Cunningham and Mr. Weidner as officers for the coming year were secretary, James Meadows, Ramona Gardens, Pasadena, and treasurer, Ralph Klages, Coolidge Rare Plant Gardens, East Pasadena. Members of the board of directors installed included Martin Usrey, Monrovia Nursery Co., Monrovia; F. C. Tomlinson; Ernest Bordier, Bordier's Nursery, Covina; Tad Uyeno, Uyeno Nursery Co., Rosemead; Ed McNeill, Tuttle Bros. Nurseries, Pasadena; Charles Vogels, Chuck's Nursery, Covina; Kenneth Kay, Bamico Gardens, Pasadena, and Frank Ishida, Uneeda Garden Nursery, South Gate.

State President Herman Sandkuhle officiated at the installation, with short talks by State Vice-president Jack Evans and Executive Secretary Elmer Merz.

Ed McNeill, Publicity.

CENTRAL CHAPTER.

About 100 members and their wives attended the celebration of president's night held November 13 by the California Association of Nurserymen at Tim's, Alameda. The guest of honor was Herman Sandkuhle, Sunset Nursery Co., Oakland, president of the state association.

Mr. Sandkuhle spoke briefly on a

recent two weeks' tour of the southern part of California, where he attended chapter meetings and found that attendance was better than a year ago. As an association program for the coming year he advocated an advertising campaign to promote better public relations, thus making the public aware of the association and the advantages of trading with its members. He expects to finance the campaign with funds obtained from increased membership.

Business transacted at the meeting included a change in the bylaws to provide for a vice-president to serve in the absence of the president. Need for such an officer be-

CHERRY TREES

Two-year, large Montmorency. Napoleon, Windsor and Black Tatarian.

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FRUIT TREES

Apple Plum

Pear

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came acute during the recent illness of the president and his wife. Hence forth, the immediate past president will automatically become the vice-president and will also serve as president of the board.

There was a discussion of the division of funds in the chapter treasury with the new Peninsula chapter, formerly a part of the Central chapter. Members of the Peninsula chapter in attendance felt that the action of the Central group was not entirely equitable, and the matter was deferred until representatives from the two groups could meet and make a satisfactory division of funds.

Insurance broker Pressely Jones discussed the insurance plan which was approved at the state meeting and is available for all members of

FRUIT TREES

Apple, I and 2-yr., Dwarf and Standard.

Pear, I and 2-yr., Dwarf and Standard.

Plum, I and 2-yr.

Sweet and Sour Cherry, I and 2-yr.

Quince, 2-yr.

Apricot, 2-yr.

Peach, I-yr.

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t illness the state association, their families Hence. esident and employees. Channing E. Jones, Ir., California Spray Chemical Corp., showed the film, "The Life of a Salesman," which brings out thirteen points of selling procedure, all applicable to nursery sales work. It was announced that Toichi Domoto, nurseryman at Hayward, has been appointed chapter representative on the board of the California Horticultural Council.

REDWOOD EMPIRE MEETING.

An average increase of one per cent in profits since the beginning of the profit-and-loss survey among bay area nurseries was reported to memhers of the Redwood Empire chapter of the California Association of Nurserymen at their meeting November 13 at Fairfax. The report was made by James E. Egger, E. L. Egger & Sons Nurseries, Mill Valley, new vice-president of the association. who stated that the average profits at the beginning of the survey were 1.6 per cent.

Thirty nurseries participated in the survey, an increase of fourteen since the previous report. It was decided to make the survey information available to 'he state secretary's office on a percentage basis, and the data will probably be made available

to association members.

Other items discussed in connection with increasing profits were gardeners' discounts, minimum delivery charge, replacement policy, inventory control and pricing of materials. Other nurseries are invited to participate in this study.

Sam Newsom, Mill Valley, gave a talk on "The Care and History of Dwarfing Trees." The practice of dwarfing trees, he said, was developed in China and Japan because of the lack of space. The Orientals are conscious of nature and as a result want nature around them as much as possible. Dwarf trees that can be taken into the house make this possible. They are never used in a good Oriental garden, however, but are grown as collections and used only as house plants. At one time the trees were collected at high altitudes.

There are several classifications of dwarf trees, Mr. Newsom continued, depending on the shape, foliage or flowers. For best results they should have small foliage and short internodes. Great emphasis is placed on the containers and stones used in the planting. Care should be taken in wiring so as not to injure the bark. Shaping should be done according to nature. Use a heavy soil and ram it hard into the container. Do not let

ONCE AGAIN IT'S CHRISTMAS

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the soil dry. A balance should always be maintained between the roots and foliage. It is usually necessary to rootprune and top prune once a year.

The new officers, installed at a prior meeting, were on hand. They are, in addition to Mr. Egger as vicepresident, J. A. Gaddis, Gaddis Nursery, Santa Rosa, president, and Hugh Wallace, Birchlane Farm, San Rafael, secretary-treasurer.

Hugh Wallace, Sec'y.

SAN JOAQUIN PARTY.

The annual Thanksgiving party of the San Joaquin chapter of the California Association of Nurserymen was held at the Hotel Tioga, Merced, November 15. The Thanksgiving theme was carried out in fall table decorations arranged by Mrs. Willis Stribling. A sheriff's office reward circular was passed around, depicting the number one desperado of the nursery business, who operates under the alias of "Compost."

A new and interesting plant variety, called the white lily tree, was introduced by Bob Giles, Straub Seed Store, Fresno. Color movies of the recent state convention in Yosemite valley were shown by Ivan

Herman Sandkuhle, president, and Elmer Merz, executive secretary, of the state association, presented brief reports on the status quo of the nursery industry. This marked their official visit to the San Joaquin chap-

The chapter went on record as officially endorsing the California Association of Nurserymen's group welfare and compensation insurance plan,

It was moved that the January meeting be held in a southern city. and the February meeting be held at Merced.

Ivan L. Stribling, Sec'v.

CENTINELA MEETING.

The monthly meeting of the Centinela chapter of the California Association of Nurserymen was held November 15 at Smith Bros. Fish Walteria. A delicious planked fish dinner was served to forty members and guests.

Ard Stagner, Palos Verdes Chinchilla Ranch, gave an interesting talk, showing colored slides of chinchillas and pictures of valuable coats made from their pelts. He then passed among the guests with one of his live pets.

An auction was held to raise money for the annual Christmas

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1-inch I. P. THREAD 34-inch THREAD HOSE THREADS

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party. Each member of the chapter donated a gift for the auction, and a substantial sum of money was realized for the treasury. It was unanimously decided by members present to hold their annual Christmas party at the Fish Shanty patio December 13. A steak dinner and entertainment were planned.

Loring L. Bigelow, Pres.

HOLLY SOCIETY.

[Continued from page 16.]

trol of the holly leaf miner. It was decided to have the borough officials contact interested property owners to obtain bids for spraying and then to award contracts to the person or firm submitting the most



ELECTRIC LAWN EDGER & HEDGE CLIPPER

For the first time a practical lightweight electric bedge clipper for gardeners, homeowners and cartakers which, with a mere wave of the wrist, will trim any hodge or bush or will prune trees to the desired helpht or form. Also ideally suited the edging lawns or triuming the hard-ta-get-b places under trees, bushes, fences, in and aroad flower heds, rocks, etc. Does away with all scient jobs. Solid NT-95. Finest Quality Construction.

APEX MANUFACTURING LAB.

acceptable bid for the job. Dr. Hamilton recommended spraying with a hydraulic sprayer, using the equivalent of one to one and one-half pounds of DDT to 100 gallons of water. Because of the risks involved. mist spraying was not recommended.

The successful bidder started spraying for leaf miner May 14. At that time about four per cent of the adult insects had already emerged in some areas. In another area about twenty-five per cent had actually emerged. The infestation was so heavy that many trees had been defoliated to the extent that there were few leaves left on the tree to

The successful bidder received \$2 for each stop, plus 50 cents for each tree sprayed. Sea Girt town clerk had contacted about 800 property owners by sending them forms asking them to give their names, addresses and number of holly trees owned. About 350 owners signed up to have their holly trees sprayed. The clerk furnished the contractor the name, address and number of individual trees to be sprayed, collected the money due and paid the successful bidder.

Mr. Wheeler reported a new pest on holly. He stated that in Massachusetts, the northern robins which winter in that area are stripping holly berries just before the Christmas season. They have tried, with little success, all the well known devices such as arsenate of lead sprayed on the trees to such an extent that the berries appeared white, noises like shooting, shining objects, crow repellents and many others.

Best of the Hollies.

Dr. Connors, chairman of the variety selection committee, has been entrusted with the important task of evaluating and determining those hollies which merit continued propagation and those selections which should sooner or later be discarded.

Dr. Connors requested the continued cooperation of society members and interested nurserymen in obtaining additional selections for comparative testing. He stated that when the station purchases plants they become the station's property and cuttings from them may be distributed as the personnel sees fit. If, however, anyone sends materials to individuals at the station, these are considered to be the property of the sender and no cuttings or plants will be distributed without the owner's permission.

Diseases of Holly.

Mr. Davis reported that during the past year he had received over 100 letters concerning blighted or rusted hollies. Inspection revealed that these were not caused by any disease, but were injured during a hurricane earlier in the year. He stated that, in general, there are two types of disease injury to plants. One is caused directly by a fungus, while the other is caused by a fungus which forms after some other type of injury.

Mr. Davis found that Bordeaux sprays are unsatisfactory in the climate of New Jersey. It is his belief that it is probably better to have some diseased holly leaves present than to have serious copper injury. He also mentioned sand in-

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BALED SHINGLE TOW

VM. A. JOHNSTON 1722 H. W. 15th St. Pertland 9, Ore. jury to hollies. Here the leaves are scalded by heat reflected from sandy soils; this paves the way for fungi

forming as secondary parasites.

The speaker called attention to the work of John R. Cole, pathologist, bureau of plant industry, U. S. D. A., Albany, Ga., on the control of tar spot of holly. According to Mr. Cole, tar spot is responsible for considerable damage to holly during years of excessive rainfall and materially reduces its value for Christmas decorations.

Mr. Cole set up a series of experiments, including both sanitation and spraying, to control the disease. The tests were conducted over a 2year period. The sanitary measures consisted of removing some of the crowded trees and pruning off the lower limbs from the ground to a height of about three feet on the trees that were left. The holly orchard was harrowed to turn under old leaves. This was done only when the ground was moist, to avoid scattering dust particles that might carry tar spot spores to new foliage, which might then become infected.

Mr. Cole's results indicate that these sanitary measures were important in controlling the disease. He found that, in addition to these precautions, spraying with either Bordeaux mixture or with Bordeaux mixture followed by Phygon XL will give commercial control of the disease. He states that Bordeaux mixture applied late in the season deposits an objectionable residue. For this reason, he advised a Bordeaux mixture for early applications and Phygon XL for later applications.

Committee Reports.

Dr. O. W. Davidson, of the New Jersey station's soils department, reported as chairman of the society's soils committee. He likened the soils problems of holly orchards with those encountered in apple orchards in that the middles are not being adequately maintained, limiting the range of root activity. This may not be of great concern except that in dry years a definite slowdown of growth will occur.

Dr. Davidson recommended a more uniform application of both fertilizer and mulch rather than the more-widely used ring-style system. In working with apple trees it has been found that the roots of one tree invariably spread beyond its crown and into the roots of other trees. The more foraging of the root system, the more uniform and vigorous will be the growth of the tree.

The society was honored by hav-

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ing Dr. H. H. Hume, Gainesville, Fla., author of the two well known books on azaleas and camellias and many horticultural articles, speak to the group on his experiences with hollies. Dr. Hume traveled up and down the Atlantic coast all summer, gathering material for his new book on holly, to be published in 1952.

He stated that, while current literature lists about 300 species of holly, there are possibly a total of nearly 500. These occur mostly from Mexico southward, in China and other vast areas of Asia. Dr. Hume related how he first became interested in holly some fifty years ago. He began with a three-quarter acre plot of 3 to 5-year-old holly seedlings. The wide variation which existed in these seedling hollies so impressed Dr. Hume that he became intrigued with their possibilities, for in those days there were no named varieties in the holly genus. He related the progress of horticultural knowledge in this country since these early days and how many of the things that were then accepted as fact we now know are simply not so. He reported that much information now in print on propagation is valueless and that many ideas we now accept as being correct would bear careful investigation.

Dr. Hume mentioned that inserting buds upward in a T cut was much quicker than inserting them downward in an inverted T, since one's fingers were not in the way.

In the Gulf states area a system of subsurface grafting is employed which is in little use elsewhere. The soil is thrown back and scions are inserted on the stock plant about two inches below the surface of the soil. It is possible to get a 3-foot growth on holly in one year on good stock. First, admonished Dr. Hume, you must plan ahead, grow good stock plants and keep these coming on for several years. Good wood is essential in propagating holly.

Dr. Hume told the group that after learning how to bud, graft and then propagate holly cuttings, he turned his attention to the selections he would grow. He was one of the earliest horticulturists to name any varieties of holly and related a number of experiences in locating and naming his selections.

Dr. Hume has never seen a completely spineless American holly. Of 225 seedlings of East Palatka, a one-spine selection of American holly, not one plant resembles either parent and all have many spines.

In his closing remarks, Dr. Hume



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suggested that much more attention be given to the English hollies. Many of them are much hardier than many persons believe; we have yet to

determine where they will thrive. We must also give attention to the males, since for nine months of each year both males and females look alike. The English, Dr. Hume said, grow just as many staminate hollies as they do females. After all, they look much alike after the birds have eaten the berries.

The Chinese holly, too, deserves notice. Seedlings of this species exhibit just about as much variation in their habits as do the opacas. They are a beautiful and interesting species, said Dr. Hume. The pernyi, the aquiperni, the ciliospinosa and

the pedunculosa species are all worthy of interest as good garden plants. The Japanese crenatas are also excellent plants and some make excellent ground covers.

Following luncheon, the secretary served as judge in an informal show of four classes of holly specimens: Male American branch, female American branch, female Chinese branch and female English branch.

The afternoon session was devoted to holly research being conducted at the New Jersey agricultural research station. Dr. Connors discussed the fruiting of holly without pollen. Professor Clark told of his results in germinating holly seeds by chemical and physical treatments. Prof. W. R. Robbins explained his work on growing hollies in sand cultures and feeding them nutrient solutions from which various essential elements are being withheld in varying amounts.

PLANT NOTES.

[Continued from page 20.]

mence to bloom in June, often continuing until autumn, if they are kept picked, while the ones that grow from four to six feet high do not often bloom until August. Unless a particular situation calls for a 6-foot plant, as may often happen in landscape work, there is seldom any reason to sacrifice a month or two of bloom to attain two or three additional feet of plant stature. Moerheim Beauty and Peregrinum, which have the most striking colors of the sneezeweeds, and Madam Canivet, which has the largest flowers, are to be found among the lower, early-blooming plants.

Maiden Pink as Ground Cover.

A correspondent states that he has a flat area of about sixty square feet in full sun which a client wants

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planted to a low-growing flowering plant, not a grass. He asks for a suggestion, and I can think of nothing better at the moment than the maiden pink.

Though not often used as a substitute for grass, Dianthus deltoides is especially good in dry, sterile spots, where it is difficult to maintain a turf or where some color in addition to green is wanted. It will survive frequent use of the lawn mower and, if not mowed too often. it will provide a bright color spot during a long flowering period in addition to a pleasing greensward throughout the year.

Because the maiden pink is more or less a weed, often sowing itself into unwanted places, some gardeners condemn it. It is of a weedy nature, of course, only because it can survive under almost any circumstances and not because of any unsightly character of the plant. For that very reason the maiden pink is beloved and much used by

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FIG TREES

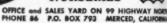
Kadota White Adriatic Brown Turkey Black Mission Calimyrna

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knowing gardeners, having more uses in their garden schemes than almost any other plant.

Bessera Elegans.

A Missouri reader asks about Bessera elegans, saying that he cannot find out a thing about the plant, although a customer has requested it. The plant is one of the Mexican bulbous subjects of which one reads much and sees little. Some bulb specialists list it among their spring offerings, and a source of supply goes to the inquirer by way of a post card.

The plant is known in California as Mexican coral drops, no doubt because of its flame-colored bells suspended from long, slender stems. It is a pretty flower, with scarlet sepals which are cream or light yellow inside, except for a scarlet edge and a central stripe of the same color. The reproductive organs, scarlet filament ending in blue anthers and pistil of a purplish shade, add to its final beauty. B. elegans is not

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hardy this far north and probably would not be hardy in Missouri, but it may be handled like the better known Milla biflora, with which most nurserymen are familiar.

Symphyandra.

Little-known plants of the campanulaceae order are the symphyandras, albeit they are mostly of some garden value and therefore deserve more attention than they now receive. In the first place, any plant that will bloom in late summer is worthy of attention, and the symphyandras will do that. All kinds that I have grown come readily from seeds, of which several kinds are available, and the plant grows without much attention in light soil in sun or shade. One could ask little more of any plant.

Symphyandra armena is an 8-inch plant with purple campanula-like bells during late summer. S. hofmanni makes a bushy plant twelve to fifteen inches high and has blooms of white bells over a long period. S. pendula is a semitrailer, seldom over five inches tall, with creamy-white flowers. S. hofmanni and S. pendula are little more than biennials and consequently need annual sowing in the nursery, but the gardener need never be without them after they once become established in their self-sowing ways in the garden. On the other hand, S. wanneri makes an erect little bush from four to six inches tall, whereon are spread purple flowers. It is perennial and quite permanent. These are notplants for mass production, to be sure, but they should be good property in the hands of most neighborhood growers.

Indian Grass.

In a garden that I visit as frequently as I can, I notice that Indian grass, Sorghastrum nutans, is finding increased use as covering for a dry slope, adding much to the attractiveness of the garden. Why the plant has never received more attention from gardeners is not easy to understand, because a well grown specimen, which should be four or five feet tall, shoots up a 12-inch panicle, beautifully decorated with many golden hairs and yellow anthers. Later the panicle turns to rich bronzy-brown, giving it another period of distinct beauty. It grows naturally in dry places from Maine southward and west to the Rocky mountains. I suspect that gardeners who have never seen it would be interested to the point of buying if they saw it at its best,

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FOR SALE—Nursery on state road. L & B greenhouse, 18 x 75 ft., with head house, 28 x 25 ft. About 13 acres of land. Priced low for quick sale. Call Patchogue 2555-J evenings, or write GREENSTOCK NURSERY, Port Jefferson Sta., L. I., N. Y.

INCORPORATED at Portland. Ore., is the West Oregon Nursery, with capital stock of \$25,000. The incorporators are Roscoe C. Nelson, Richard H. Olcott and George W. Rogers.

CONSTRUCTION is under way on a new 16x20-foot building at the Woodland Hills Nursery, Woodland Hills, Calif., owned by Mr. and Mrs. Al Boulton. The unit will be furnished with modern fixtures for displaying nursery stock and garden supplies.

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Exceptional opportunity for experienced evergreen nurseryman to operate new 36-acre nursery and salesyard. Must understand all phases. Home furnished, salary and opportunity to share profits. Give full personal details and references in first letter.

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3 to 8 ins	6.00	\$19.66
Table Mountain Pine, 1-2,		
6 to 12 ins	6.00	58.00
Colorado Blue Spruce, 2-1,		
3 to 5 ins	6.00	50.00
Colorado Blue Spruce, 2-2,		
4 to 8 ins	8.00	75.00
Norway Spruce, 2-0, 3 to 6 ins.	3.00	29.00
Norway Spruce, 2-1, 3 to 6 ins.	4.00	35.00
Norway Spruce, 2-2, 4 to 8 ins.	6.00	50.00
Black Hills White Spruce, 3-0,		
2 to 4 ins	3.50	25.W
Black Hills White Spruce, 2-1,		
2 to 5 ins	5.00	45.00
White Spruce, 2-0, 2 to 5 ins	3.00	25.00
Engelmann Spruce, 2-1,		
3 to 6 ins	5.00	40.00
Balsam Fir, 2-1, 2 to 4 ins	4.00	30.00
American Arborvitae, 2-0,		
1 to 2 ins	2.50	18.00
Oriental Arborvitae, 2-0,		
2 to 4 ins	2.00	10.00
Oriental Arborvitae, 3-0,		
3 to 6 ins	3.00	12.60
Woodward Globe Arborvitae,		
r.c	10.00	****
2 per cent discount for eash w	ith ord	er.
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LINERS, SPRING DELIVERY. Viburaum burkwoodi, 4 to 6 ins... Viburaum burkwoodi, 6 to 8 ins... Viburaum burkwoodi, 6 to 8 ins... Viburaum burkwoodi, 8 to 10 ins... Daphne cneorum ... Viburaum burkwoodi, 8 to 10 ins... Daphne cneorum ... Viburaum burkwoodi, 8 to 10 ins... Juniperus tamariscifolia, 4 to 6 ins... Juniperus tamariscifolia, 6 to 8 ins... Juniperus sargenti, 4 to 6 ins... Juniperus sargenti, 6 to 8 ins... Lithospermum (Heavenly Blue) ... Terms: 25 per cent with order, before shipment or express C.O.D. FOUR STAR NURSERY Rt. 3, Box 3529 Edmond

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EVERGREEN LINERS and CUTTING POT-GROWN EVERGREEN LINERS Each-Per 100 Per	
Arborvitae, Pyramid,	
1 to 7 ing	0.16
2-yr., 7 to 8 ins., field-grown26 arborvitae, Globe Woodward,	.24
1-yr., 3 to 4 ins	.16
Taxus media hicksi,	.10
s.yr., 6 to 8 ins	.18
	. 10
Viburnum burkwoodi,	.18
1-yr., 2 to 4 ins	.13
HEAVI-ROUTED CUTTINGS.	
From flats, rooted outside in lath house	
Each—Per 100 Per	1000
Juniperus glauca hetzi\$0.10	0.09
Arborvitae, American,	
Dark Green	.09
Arborvitae, Pyramid	.09
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Taxus media No. 8, spreading	.08
Toyun media hatfieldi	.08
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2 per cent discount and free packing	for
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250 plants at 1000 rate.	
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WHITE PINE (Pinus strobus) liners.
Two-year, root-pruned seedlings, grown a low bed density resulting in exceptionally stocky, well offer plants. Plants have good blue-free color.

10 4 ins., \$20.00 per 1000.

10 4 to 6 ins., \$26.00 per 1000.

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These seedlings, root-pruned and stocky, are grown from Winona, Minn., seeds which we have found produce plants less subject to cedar blight. We have never seen a nicer bed of cedar seedlings.

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500 or more plants take 1000 rate.

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Canaerti, Glauca. Burki, Keteleeri, Chinese Blue Columnar, Hetzi and Pfitzeriana on Virginiana understock. Price \$40.00 per 100. regardless of number ordered. Terms: Ali cash with order earns free packing, or one-fourth cash and balance before shipping date plue packing charges at cost.

We invite comparison with grafts of any other company. Remember, when better grafts are made. Crume will make them. We set orders each year for twice as many grafts as we can make. Be smart and order early. A hint to the wise is sufficient.

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Highway 42

Magnolla grandiffora seedlings. Field bed

Magnolia grandiflora seedlings. Field bed frown, 1-yr., average about 5 ins. \$65.00 per 1009, 300 at 1000 rate. 2-yr. seedlings, 12 to 11 ins. 256.18 to 24 ins. 406; 2 to 3 ft. 50c each; row-run, 12 ins. and up. 30c each in lots of 50 or more. No orders for assorted sizes in 2-yr. plants dug before spring, 1952. Orders for 1-yr. and 2-yr. row-run seedlings is be dug now and until about April 10, 1952, is suit customer's preference. Packed free for cash with order. Approximately 500 well callpered and mostly branched Magnolias in 4-gallon cans. \$2.00 each. Only for trucks to pick up at nursery, will not pack for shipment.

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Cedar, seedlings, 2-yr., 8 to	Each 0 12 ins\$0.06
Cedar, seedlings, 2-vr. 12	to 15 lns 0716
Ceur, trans., 2-vr., 8 to T	ing
Arborvitae, seedlings, 1	-Vr.
4 to 8 ins.	
Cedar, sheared spec., 5 to	6 ft 3.00
Cedar, sheared spec., 8 to 1 KLEIN NURSERY	2 ft., 75c per ft.
THE PERSON NAMED IN PARTY OF THE PERSON NAMED	Enid Okla

EVERGREEN TRANSPLANTS.
Per 100

ins. 95.00
Red Crape Myrtle, 2-yr. cuttings, grown in
beds, 24 to 39 ins., 25c each.
LUKE NURSERY Pauls Valley, Okla.

beds, 24 to sy the LUKE NURSERY

EUONYMUS.

Euonymus alatus compactus.
1-yr., transplanted cuttings, 4 to 7 ins.
\$25.00 per 100.
2-yr., transplanted cuttings, 10 to 12 ins., branched, \$35.00 per 100.

This is all strong, heavy-rooted stock.
C. HOOGENDOORN

Newport, R. I.

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Thuja orientalia, Chinese Arborvitae, 3/16 to %-in. cal., \$45.00 per 1000. Fine plants. Also heavy Liners, 24 ins., % to %-in. cal., 10c each; \$90.00 per 1000.

Will reach you in excellent condition. Only a few thousand left.

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Book your liners now for fall and spring.
Flower liners, liners in pots and rooted
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Ask for our new catalog of choice fall and
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Nandina domestica. Strong seedlings, \$30,00 per 1000. Free packing. Prepaid in the United States.
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UNROOTED CUTTINGS OF PFITZER JUNIPER, 6 to 10 ins. long. not trimmed. Moss-packed; express only. \$10.00 per 1000. Cash with order. KRONE'S FLOWER SHOP 4221 Grand Ave. Fort Smith, Ark.

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We are headquarters for heavy liners of a
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STUART PECANS — Strong grower and heavy producer of large nuts. Heavy plants with short taproots and a heavy feeder system. Will grow off rapidly. Booking now for immediate delivery. 2 to 5 ft., 85c ea.; 3 to 4 ft., 9c ea.; 4 to 5 ft., \$1.10 ea.; 5 to 6 ft., \$1.25 ea.; 6 to 7 ft., \$1.45 ea. Also seedling pecans, ideal for shade, at lower prices. FLORIDA NURSERY & LANDSCAPE CO. N. 14th St.

Early and heavy-bearing Papershell Pecan trees; blightproof Pineapple Pears and the new Orlent Pear; Apple, Peach and Plum trees; Grapevines. New catalog free, BASS PECAN CO. Lumberton, Miss. Largest Growers of Pecan Trees in the World

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Vinca Minor, Perwinkle, Myrtle. 15 to 30cane clumps, individually made up. 3 yrs.
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From Hardy Northern-grown Shrubs and
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TYLER ROSES.
Extra-fine, top-quality.
Prices reasonable. Correctly graded. List upon request. Also several thousand 3-yr. Multiflora Hedge Roses.
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Painesville, Ohio, Grown,	
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Magna Charta, XXX\$7.00	\$60.00
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187 leading varieties, Standard and Patented, 2-year-old field-grown, state inspected and certified. Permits to all 48 states and foreign countries. America's best wrapped and waxed roses, also bare root. Rock-bottom prices. Exclusively wholesale. Write us for illustrated packs in natural colors, and wholesale prices.

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2-yr. plants; grown right, graded right
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Free list of other seeds.
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Prunus Maritima. Strong 1-yr. seedlings, \$10.00 per 100. \$90.00 per 1000. C. HOOGEN	6 to 12 ins.
Turner Road	Newport, R. I.
ORIENTAL MA	
Magnolia soulangeana nig	ra, Each
2 to 3 ft., bare root	
3 to 4 ft., bare root	2.00
4 to 5 ft., bare root	2.75
WELCH BROS. NURSER	Y, Inc., Wilmer, Ala.

NURSERY STOCK.
CHERRIES, Montmorency, 9/16-in., 4 to 5
ft., 60c; 11/16-in., 5 to 6 ft., 70c ea.
APPLES, 1-yr., 2 to 3 ft., 15c; 3 to 4 ft.,
20c; 4 to 5 ft., 25c; 2-yr., branched, 5/16-in.,
20c; 7/16-in., 30c; 9/16-in., 40c; 11/16-in., 20c: 7/1 50c ea. Ada Red Grimes Golden

Ada Red
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Black Ben Davis
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Blood Red Jonathan
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Blood Red Stayman
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4 to 5 ft., 40e; 5 to 7 ft., 50e ea.
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Early Elberta
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Halehaven
FEARS. 3-yr. grafts. well branched, good
eallper, 5 to 6 ft., 50e; 6 to 8 ft., 60e; 8 to 10 ft., 70e ea.

caliper, 5 to 6 ft., 50e; 6 to 8 ft., 60e; 8 to 10 ft., 70e ca.

Keiffer
CHESTNUTS, CHINESE. Blight-resistant,
2-yr., 3 to 4 ft., 75e; 4 to 5 ft., \$1.00 ca.
WALNUT, BLACK, Seedlings, 2 to 3 ft.,
30e; 3 to 4 ft., 45c; 4 to 6 ft., 65e; 6 to 8 ft.,
30e; 8 to 10 ft., 95e ca.
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3c; 3 to 4 ft., 50e; 4 to 6 ft., 65e ca.
GRAPES, 2-yr., No. 1, Concord, \$8.50 pc
100; \$75.00 pcr 1009. Fredonia, \$12.00 pcr
100; \$100.00 pcr 1009. Fredonia, \$100.00 pcr
100; \$10

c ea.
POPLAR, Simon. 4 to 6 ft., 30c ea.
BENTON COUNTY NURSERY CO., Inc.
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WHOLESALE LIST Fall, 1961.—Spring, 1962.
Field-grown Evergreen Liners.
All liners are well rooted and are first-class ock.

Per 100 Per 1000

All liners are well rooted and are new clock stock. Per 100 Pe .0716

plants at 1000 rate. No packing charge when cash is sent with

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All orders will be appreciated and given prompt attention.

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FLOWERING CRABS.

1000 Hopa, 1-yr., mostly 4 to 6 ft.
1000 Eley, 1-yr., mostly 4 to 6 ft.
200 Atroanguinea, 1-yr., 3 to 4 ft.
Also a limited number of Adstringens,
Aldenham, Arnold, Dolgo, Micromalus, Red
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Newer kinds: Almey, Charlotte, Dorothea,
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Most kinds at the 10 rate: 3 to 4 ft., 80c;
\$ to 6 ft., \$1.00; 6 ft. up, \$1.25 each. Newer
kinds: 2 to 3 ft., \$1.00; a to 4 ft., \$1.35; 4
to 5 ft., \$1.06 each. Hopa: 4 to 5 ft., \$1.55; 4
to 5 ft., \$1.00 for fall or spring delivery.

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Box 88

PIN OAK (Quercus palustris) whips.
These 3-year, field-srown transplants will
make finished stock in a hurry and are not
to be confused with seedlings. We think you
will agree that they are an exceptional value
at the following prices:

12 to 18 ins. \$0.18 \$0.19

18 to 24 ins. 18 15

24 to 35 ins. 25 25

50 at the 100 rates 500 or more task 1000

No packing charges.
FORREST KEELING NURSERY
Elsberry, Mo.

FLOWERING SHRUBS.

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any

3 and 4-yr.-old, transplanted and twice back.

Aralla pentaphylla, 2 to 3 ft., 3 to 4 to 5 ft., 5 to 6 ft.

Cornus amomum, 3 to 4 ft., 4 to 5 to 5 ft.

5 to 6 ft.

Deutzia gracilis, 12 to 15 ins., 15 to 18 ins.

18 to 24 ins.

18 to 24 ins.

18 to 24 ins.

Bydrangea P. G. (large-flowered type), 18 and 18 ins., 18 to 24 ins., 2 to 3 ft., 3 to 4 ft.

Lonicera bella albida, 2 to 3 ft., 3 to 4 ft.

Lonicera morrowi, 2 to 3 ft., 3 to 4 ft.

Lonicera tatarica rubra, 2 to 3 ft., 3 to 4 ft.

4 to 5 ft.

Philadelphus corporation

Lonicera tatarica ruora, 2 to 3 tt., 3 to 4 ft. 4 to 5 ft.
Philadelphus coronarius, 2 to 3 ft., 3 to 4 ft. 4 to 5 ft.
Philadelphus virginalis, 2 to 3 ft., Philadelphus virginalis, 2 to 3 ft., 2 to 4 ft., 4 to 5 ft.
Symphoricarpos racemosus, 2 to 3 ft., 3 to 4 ft., 4 to 5 ft.
Symphoricarpos vulgaris, 2 to 3 ft., 3 to 4 ft., 4 to 5 ft.
Weigela Abel Carriere, 3 to 4 ft., 4 to 5 ft.
Weigela hendersoni, 3 to 4 ft., 4 to 5 ft.
Weigela hendersoni, 3 to 4 ft., 4 to 5 ft.
Sto 6 ft.

Weigela Eva Kathke, 3 to 4 ft., 4 to 5 Weigela hendersoni, 3 to 4 ft., 4 to 5 5 to 6 ft. The above stock is in surplus and we e quote special prices on quantity lots. We for special quotations. CHAMPION NURSERIES Perry, (6)

FOR FALL DELIVERY.
Mimosa (Silk Tree) Albizzia Julibrissia

customers.

Liberal grading. No packing charge.

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Lilac Firmament (new). Immense panicis of large formal flowers of a beautiful shift of sky-blue, truly a gem among blue using ties. This is one of Lemoine's best single lighblues and is exceptionally fine in every my Last spring we had plants producing like spikes.

Strong 1. The strength of the stren Strong 1-yr., grafts, 6 to 12 ina., \$75M per 100.

C. HOOGENDOORN Newport, B.1

A few large 3 and 4-year-old Apple. Jonathan, York, Winesap, Stayman, Rel and Yellow Delicious, Rome Beauty, Grims Golden, 1 to 1½-in., \$65.00: 1½-in. and \$8100.00 per 100.

500 American Asb. 1½ to 1½-in., \$1.85.1½ to 1½-in., \$1.85.2 to 2½-in., \$1.80 esch. Pin Oak, Soft and Hard Maple from 1 to 3-in. cal.

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Phone: 64
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FORSYTHIA.

Forsythia Spring Glory (new).

Strong 1-yr., transplants, 15 to 14 ins, 1 branches and up 116.00 per 100.

The new pale yellow Forsythia which is rapidly gaining in popularity.

C. HOOGENDOORN

Turner Road

BEAUTY BUSH.

Kolkwitzia amabilis (Beauty Bush)

Strong 2-yr., tr., 12 to 18 ins., branched 220.00 per 100.

1175.00 per 1000.

These are strong liners and could be selfor mail-order business.

C. HOOGENDOORN

Turner Road

| Newport R | GINKGO BILOBA. | Per 100 Per 100 | Per 100 Per 100 | Per 100 Per 100 | P

Lombardy Poplar, Golden Willow.
Extra-nice trees.
8 to 10 ft., 35c; 10 to 12 ft., 50c ca.
ROLLER'S NURSERY Rasers, int.

DECEMBER 15, 1951

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Per 100 ... \$20.00 ... \$20.00 ... \$40.00 ... \$75.00 and are owering In this faction. dd you

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VIBURNUM.
Viburnum carlesi.
1-year, seedlings, once transplanted, 4 to 10 830.00 per 100. \$250.00 per 1000. \$250.00 per 1000. ong 1-yr., grafts, 10 to 18 ins. \$65.00 per 100. \$600.00 per 100. C. HOOGENDOORN Newbort, R. I.

furner Road LINING-OUT STOCK, 1951-1952. Per 100 Per 1000

VINES

CLEMATIS.

Clematis montana rubens (Anemone Clematis).

Strong 2-yr. field-grown plants, staked, 3 to 4 ft.

\$100.00 per 100.

A strong vigorous, extremely hardy variety. Will thrive under most adverse conditions. Clusters of anemone-like flowers which spen up in May. One of the most dependable figatis.

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Vinca minor, excellent evergreen ground over, organically grown plants, \$24.00 and \$8.00 per 1000. Liners, \$10.00 per 1000. Made-up bundles of over 20 stems, \$80.00 per 1000. Earthworms, \$20.00 per 1000. \$ Rodkin, VARIETY NURSERY FARMS, R.F.D., Lambertville, N. J.

Native black Walnuts and common Hickory sats, 6c per lb. Scaley bark Hickory suts, sc per lb. F.O.B. Stilwell, Okla. In 50-lb. lots and up.

IDEAL FRUIT FARM Stilwell, Okla.

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CHRISTMAS TREE SEEDLINGS. Per Per Per 1000 10,000 50,000

VAN'S PINES
West Olive, Mich.

CHRISTMAS TREES.
50,000 Red Pine, northern Michigan-grown.
6 to 8 ft., heavily branched. Will deliver anywhere, Phone: Allendale 4-F-22.
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Rt. 3

Christmas Trees and Evergreen Tips—Price llst free. Also lining-out and B&B evergreens for spring delivery. THE PEQUOT NURSERIES Brainerd, Minn.

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plain painted
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0ur labels are perfectly white and smooth on both sides and are pronounced by growers the best and most economical.

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ALUMINUM LABELS — Imported from Germanium Labels.

ALUMINUM LABELS — Imported from Germany, Have copper wire and are used by the following: Seed merchants, growers, numerymen, horticulturists, etc. Labels in following sizes: 3-3/16 ins. long x ½ ins. wide; 4 ins. long x ½ ins. wide; 4 ins. long x ½ ins. wide; 6 ins. long x ½ ins. following sizes: 3-3/16 ins. long x ½ ins. following sizes: 3-3/16 ins. long x ½ ins. long x ½ ins. following sizes: 3-3/16 ins. long x ½ ins. following sizes: 1-3/16 ins. long x ½ ins. long x ½ ins. following sizes: 1-3/16 per 1000, 10,000 labels, 4 x ½ ins. 313.00 per 1000, F.O.B. warehouse, New York, All packed in one case and to be sold in its entirety. Address Box 845, care of American Nurseryman.

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16x14x3%

24.98 per 100

29x14x2%

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29x14x2%

28.68 per 100

22%x15x2%

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Tamarix and common Lilac, seedlings and
1-yr. liners, and Russian Olive seedlings.
HOME NURSERY Cuba, Kan.

REVIEW OF WOODY PLANT PROPAGATION.

[Concluded from page 43.]

which are normally rather difficult to transplant. We have recently sent potted seedlings of American chestnuts to Holland and Sweden by air mail at a cost of less than one-fifth the normal charge for comparable plants grown in soil.

Air Layers.

Layers are not so generally used as are the more common methods of propagation by grafts, cuttings and seeds. There has, however, been one important development in recent years. In 1947 the ancient art of Chinese air layerage was brought up to date when Col. William E. Grove, Laurel, Fla., first used plastic films in air layering litchi trees. Since the film which he used is practically impermeable to water and water vapor, it is now possible to keep air layers suitably moist for months at a time even under outof-door conditions. There may indeed be serious difficulty in keeping plastic-wrapped air layers from becoming soaking wet, which is certainly disadvantageous to rooting. In a recent article in Horticulture (Vol. 29, No. 8), I have described and illustrated what I now believe to be the best method for applying air layers to northern woody plants.

Although I do not believe that plastic air layerage will ever replace the more widely accepted methods of propagation, I am sure that it has important special uses in the nursery business. While on a visit to the University of Maryland last winter, I talked to a nurseryman whose field of specimen Japanese maples had been severely injured by frost during the previous year. In early spring plastic air layers were placed on relatively large uninjured branches. They rooted readily, and before autumn it was possible to pull out the remains of the injured plants and replant with air layers.

Dr. Donald Wyman has published a summation of our results with plastic-wrapped air layers on a wide variety of woody species in Arnoldia, Vol. 11, No. 7-8.

Division.

I cannot complete a review of woody plant propagation without mentioning division. Unless one wishes to increase one's supply in geometric proportions, it is often possible to maintain a good stock by simple division.

Spiraea, for example, can be easily propagated by removing suitable side shoots during digging or grading. In small nurseries it may even be good practice to dig and plant at the same time. I have often dug orders in the field in early spring in situations where it was possible to replant enough small stock to replace the larger specimens which I took out.

MINNESOTA ASSOCIATION. [Continued from page 7.]

ance a year ago of \$923.52, receipts of \$946.16, expenditures of \$740.16 and a balance as of December 1, 1951, amounting to \$1,129.52, besides two government bonds each of \$1,000 par value. Membership included fifty-nine active, fourteen affiliate and twenty-five associate.

Among the committee reports, that of Paul Peters, Sherburn, aroused special interest, relating to For FAST, EASY WORK

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nurseries are without it. Many
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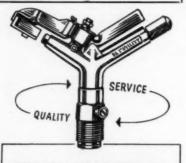
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the 4-H Clubs and Future Farmers of America. Arrangements have been made for presentation by the Minnesota State Nurserymen's Association of a gift certificate for \$5 worth of nursery stock to the winner of the home beautification and small fruits contest in each county.

Entomologist Reports.

Thor L. Aamodt, state entomologist, who had recently been elected president of the National Plant Board, pledged his efforts in that capacity to resist the renewing tendency toward the establishment of interstate trade barriers by quarantine regulations.

He warned against the possible introduction of new plant pests and diseases and of the possibility of biological warfare, because of the number of dangerous pests in foreign

countries.

Most of Mr. Aamodt's remarks were directed toward the latest methods of control of those insects and diseases giving most trouble the past season in Minnesota nursenie. He showed a number of slides to enable his hearers to recognize less common insect pests, particularly the form of forest tent caterpillar which is wreaking destruction in the aspen forests of northern Minnesota and which, where infestations are heavy, strips the foliage of other trees and some shrubs also.

"Plant America."

Peter Cascio, vice-president of the American Association of Nurserymen, told of his connection with Minnesota through his operation today of the business originally started at Hartford, Conn., by C. N. Ruedlinger and sold by him in 1910 when he moved to Minneapolis.

Relating the history of "Plant America" in Connecticut, Mr. Cascio told how the governor of that state issued the first "Plant America" proclamation, almost two years ago. Later the third week in October was proclaimed "Plant Connecticut week" and showed a striking gain in nursery sales. Following a Massachusetts example, the Connecticut unrserymen planted twenty public buildings in the town of Granby, near Hartford, obtaining much publicity and further gains in sales.

Other ways in which members can promote sales are suggested by the A. A. N.; these were detailed by Mr. Cascio, as were also the many benefits to the entire industry secured by the efforts of the Washington office and the association committees. He urged those not already A. A. N. members to join, not only

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to gain these benefits, but also to lend their support to the organization working every day on their behalf. Curtis Porterfield, A. A. N. administrative assistant, Washington, D. C., presented the first showing of a series of colored slides illustrative of the work of the national organization, while he read accompanying explanatory comments.

Committee Reports.

At the final session Kimball Andrews, for the public relations committee, reported that the governor's appointment of a large committee for the advancement of the "Plant America" program in the state had been secured last spring, and it was expected to carry out acrivities on the local level in the coming season.

At the conclusion of the session Ken Law read a memorial resolution on the recent death of E. S. Mount Arbor Nurseries, Shenandoah, Ia., long an associate member of the organization.

University Breeding Work.

In his usual talk on new fruits and ornamentals, Dr. W. H. Alderman, chief of the department of horticulture at the University of Minnesota, explained that a new project had been set up, the breeding of woody ornamentals, making a modest start because of no increase in personnel

Two chrysanthemums are ready for introduction. No. 47-195-4 is rose-pink, similar to Heatherbloom, but brighter in flower and a better plant. No. 46-131-7 is a largeflowered bronze, new type, with larger flowers than previous Minnesota varieties. It holds color and makes an excellent plant. These have been distributed for trial to about 100 growers and propagators. A dozen or more new ones that appear promising need more testing.

In roses, White Dawn, a white semiclimber, is doing well and is the best of four varieties introduced. Work is being undertaken toward a winter-hardy garden rose using R. arkansana as one parent.

In red-flowered crabs, objectives are bright color of flower and small, showy bright-colored fruit. Three good selections are being propagated for a third test. The Flame crab, having showy pinkish-white flower and bright red, persistent fruits, should be more widely used.

In highbush cranberry there are some excellent selections of promise for fruit production and ornamen-



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No. 0 No. 1 No. 2 No. 3 No. 4 Pan	20 lbs. 30 lbs. 48 lbs. 60 lbs. 60 lbs.	50 lbs. 70 lbs. 110 lbs. 140 lbs. 140 lbs.	4 ins. 6 ins. 7 ins. 8½ ins. 8½ ins.	3½ ins. 5 ins. 5% ins. 6½ ins. 7½ ins.	4 ins. 6 ins. 8 ins. 9 ins. 5 ins.	\$2.75 4.00 4.50 5.00 5.00	\$25.00 37.50 42.50 47.50 47.50	\$3.75 5.25 5.75 6.25 6.25	\$35.00 50.00 55.00 60.00 60.00

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tals. Fruits vary from orange to red, but all are bright and showy.

In Juneberry, there are several productive and large-fruited selections from over 2,000 seedlings. The problem is how to propagate.

In crataegus, the several selections have been made from a large group of seedlings on basis of plant shape, attractiveness of fruit and freedom from disease. The problem is how to propagate.

New lines of work are with flowering dogwood, forsythia, coryopteris, blue mist, wistaria and Boston ivy.

New Fruits.

Of fruits previously introduced, Haralson is appearing with increasing frequency on recommended lists in the prairie provinces of Canada. Beacon is attracting much attention for commercial planting because of high prices received for richly colored red fruits ripening about with Duchess and extending to the Wealthy season. Minjon is gaining favor rapidly. Its clustering habit appears to be controlled satisfactorily by the use of hormone sprays added to calyx or first cover spray. Redwell is proving satisfactory because of annual bearing, resistance to dropping, good color and good quality. Lakeland, the most recently introduced apple, is attracting much attention because of annual cropping, high color, satisfactory cooking and dessert quality. The North Star cherry still looks good after the record-breaking cold of last

New varieties practically ready for introduction include Minnesota No. 66 cherry, a good running mate for North Star. It ripens ten days later and is possibly even more winterhardy. Fruits are large and of Montmorency type. Minnesota No. 69 currant is a good red currant, with bush more vigorous and upright than Red Lake, with the berries larger, but the clusters not quite so long.



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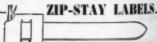
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ets.

Among future prospects in new fruits, about twenty selections in apples appear outstanding in second test and are being repropagated for more extensive testing. In apricots, unmistakable progress is being made. A few selections fruited well in 1950 and 1951 following winters that afforded a severe test. If they continue to perform well, they will be well worth introduction,

In strawberries, so many new elections of promise are appearing that the problem of testing and retesting and finding the best is proving to be difficult and time-consuming. It is safe to say that varieties more productive and better shippers and freezers than our present standard varieties are in sight.

Test Program.

Dr. Leon Snyder, extension horticulturist at the University of Minnesota, discussed a test program for trees and shrubs. Particularly the ornamentals need to be grown for trial in different sections of the state, to determine the value not only of the results of the university's breeding program, but also of species and varieties from elsewhere, such as in viburnums and crab apples. Some of this is done now, by individual nurserymen, by parks and by amateurs. The project needs a public-supported arboretum for the purpose,

In Minnesota geographic sections vary in climate, acid or alkaline soil, texture of soil and moisture. Besides the question of hardiness, there is the tolerance of shade to be determined.

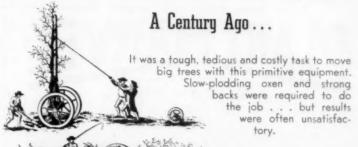
The extension department is completing its list of plants according to hardiness zones in the state, con-cluded Dr. Snyder.

Office Practices.

Concluding the session, a panel on general office practices was conducted by Kimball Andrews, Andrews Nursery Co., Faribault, Minn.; Vernon Marshall, Marshall Nurseries, Arlington, Neb., and Ted Korves, Gurney Seed & Nursery Co., Yankton, S. D., the last-named pinch-hitting for George Rose.

Each speaker briefly described the steps in the passage of an order received in his firm's office. The procedure varies considerably, because one treated wholesale orders, another agent's orders and the third mailorder catalog orders. Questions on their individual methods were numerous, and the informal discussion maintained considerable interest despite the late hour.

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PERENNIALS FOR THE NORTHWEST.

[Continued from page 9.]

grown easily from seeds, with some kinds needing more care and a long time to make salable or flowering plants. When some do not respond to ordinary care, we are likely to blame such failure on the seeds, ner er accepting the blame ourselves.

Seedage is nature's way of reproducing itself, and if we observe nature and assist in proper handling of the seeds, our failures will be few

When seeds are ripe in the pod some species just open up and let the seeds drop around the mother plant using its foliage as a shield against drying out. Others, such as peonies and dictamnus eject or snap them out, often a considerable distance. It is interesting to note that most of such seeds germinate and grow. And, what do most of us do?

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We carefully gather the seeds, put them into paper envelopes, stack them away on some shelf or closet to dry out for six months before we sow them. Then, having poor or no results, we pass it off with "That seed was no good."

The specialist has learned from nature that seeds lose vitality in drying; so he puts his seeds in a glass jar, never filling any jar over half full, keeping the cover on tight, in a cool place.

The sooner some seeds are sown, the better the germination, and no matter how busy one is otherwise, beds or frames must be prepared and the seeds sown as they ripen. Sometimes we think we can go nature one better, holding such seeds till January or February, and then sowing in the greenhouse and we wonder why we have poor stands.

Nature requires that the hard outer coating be cracked by frost, and if we sow dictamnus, delphinium, hibiscus and aconitum immediately on harvesting, we find they germinate apparently 100 per cent.

Nature in the raw is never mild; so, with the extremely late warm spells in fall, mild winters and laterecurring frosts in spring we often have in this area, results sometimes are not satisfactory, and we take a better chance of success sowing in the greenhouse, especially the finer seeds, such as heuchera, campanula, delphinium and trollius.

While principles do not change, methods may, and in this age we all have electric refrigeration.

When it is desired to sow such seeds later under glass, we can put the glass jars containing the seeds immediately into the refrigerator.



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FIRST in the nursery — FIRST in performance Adair Shrub and Tree Digger

The Adair Digger is the product of years of experience and research. Several patents are now pending on the distinctive features of this tool. Any other tree digger not having these features will disappoint and prove expensive in the long run.

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See our exhibit at the Illinois State Nurserymen's Association convention at Chicago

Write for descriptive literature.

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About two weeks before sowing, put them in an ice cube tray, filling gradually with water and seeds, partly freezing and continuing such lavers till the tray is full, and then freeze solid into ice. That's what nature does. After from three to five days, thaw out. Do not let seeds dry, but repeat the process three to five times before sowing, and you will obtain a good stand of seedlings.

It takes a little time and patience to handle seeds this way; it repays itself in the resulting crop of plants.

Just because one has greenhouse space available to start the finer seeds does not always assure 100 per cent germination. In and near the larger towns using piped water treated with chlorine for purification, some unexpected disappointments will come by apparently poor germination or, if the seeds do germinate, by poor growth of seedlings. Here again we have to change our method-using rain water, or, in winter, melting snow to use for such watering.

All hardy seeds will germinate better when kept in a refrigerator, putting a number of seed envelopes in a jar, yet not filling the jar over

half full.

Most of our perennials can be propagated by division in some form -peonies, phlox, iris, Shasta daisies, etc. To grow many of these on a wholesale basis is a different job entirely than just plain division of making three to five out of one.

Phlox decussata, the upright one known to most of us, is multiplied by root cuttings, taken from new roots made in fall from stock planted out the spring or fall before. Such stock must be kept growing freely by constant cultivation and watering to make good roots in the fall.

Such roots must have been ripened before lifting from the field. It is preferable to use only the heavier roots toward the top, discarding the

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weaker lower part. These are cut into pieces one and one-half to two inches long, sown quite heavy, broad. cast in a well prepared frame, pressed into the loose soil with a board and covered about one-quarter inch with sand. They are then watered and kept moist till the ground freezes, when they are covered with sash. In spring, after sash is removed, the plants must be kept watered yet not soaked and will he ready to plant out by June.

In mass production, combating with weather conditions, labor and scarcity of stock, such cuttings also are sown in flats in the greenhouse Better success is had by placing such cuttings upright in the flats, covering about one-quarter inch. When such cuttings are kept heeled in in a frame outdoors, and allowed to freeze before planting under glass, growth will be improved.

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Better root cuttings will be ob. tained from phlox planted out in light soil where water can be given as needed. A few varieties of Phlox decussata make roots sparingly, so are never plentiful. Some of the newer varieties make only a few eves on the stem, so that softwooded propagation is slow and tedious. They generally are the beauties in their color and always scarce in sup-

Phlox decussata type, such as Miss Lingard and Miss Verboom, does not grow from such root cuttings, making instead stolons. These planted separately, will make new plants; yet when such clumps are planted in boxes in fall, allowed to freeze and then brought into a cool greenhouse, it is surprising how many softwood cuttings can be made from one field-grown stock plant.

Phlox subulata grows easily enough from its runners; yet how many of us will take the time to divide a field-grown plant into small pieces, insert them in a frame or bed. water and shade for a little while so we can have a good supply of them?

Other perennials propagated by root cuttings when grown in quantity are Japanese anemones, Oriental poppies, pachysandra, bleeding hearts, even gaillardias. We do not grow the named varieties of gaillardias and delphiniums, being too impatient; yet the Englishman and Hollander do it, mostly because they have milder climates—longer growing seasons with less weather extremes to contend with than we

Chrysanthemums are a natural fall-flowering perennial and used to be considered at their best blooming

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after a light frost. Being available in a large range of colors and type of bloom, they are ever popular in demand, which the hybridizer has tried to hurry along with earlier blooming periods, being more or less successful, according to seasonal conditions. And, here in the northwest, it appears they are always extreme. Given a rich soil, not allowed to suffer for moisture, chrysanthemums

suffer for moisture, chrysanthemums grow rapidly and bloom freely, though we do expect a lot for a perennial—to be planted out in May or June, make heavy growth and bloom profusely in two to three months' growing time. Let's handle them the same as annuals and the public will be better satisfied.

Here, again, you will note chlorinetreated water may stunt some varieties, especially on heavier soils.

Peonies we all know how to grow; yet how many of us grow the new varieties? If you will plant some of the newer kinds and let customers see them in bloom, you will be surprised how anxious they are to have them. Names mean little to the average buyer, but seeing is believing, which creates a desire no colored picture in a catalog can do. They will be an attraction and sales appeal for all your nursery stock.

Bear in mind, to grow them for blooming, plant in heavy clay soil. For propagation, the plants will do better in light soil.

Iris, too, is unlimited in color availability, from white and yellow, through pinks and reds, palest blue to the darkest blue—almost black. No other perennial gives such wide choice of colors with plants so easily grown, and here again the buyer must be shown what can be had by seeing them in bloom on our nursery grounds.

Asters for us are limited to the novaeangliae type, which is too coarse for the average lot garden. The one good one for us is Frikarti, that blooms from July to frost. It is a little tender, so needs extra care in covering.

Hemerocallis and funkias most of us look down on just because they are hardy. They will grow almost everywhere and can be transplanted almost any time without loss. What are they good for? Try planting hemerocallis on some slope to prevent its washing down or eroding. The hemerocallis will take over and solve the erosion problem at little expense. Funkias are mostly thought of as border or edging plants; yet plant a few of the stronger-growing kind as accent plants, give them

[Concluded on page 66.]





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space to develop and with little care you will have an outstanding clump attractive all season.

The most common ones used, which have to be thinned out often, are lancifolia and lanceolata. These anyone can easily divide, as they separate freely into single divisions. The better one is caerulea, making larger, heavier foliage and having a bell-shaped flower. This makes a hard, fleshy crown, which one has to cut with a knife or spade to multiply one's stock. Quite often the larger growers use lanceolata for caerulea; it is a poor substitute for the true variety.

Subcordata grandiflora grows and propagates the same way; yet a well established plant in partial shade always draws attention with its pure white, sweetly scented flowers and

light green foliage.

Campanulas are limited in use for us in this area, being touchy in soil conditions and location. Carpatica is mostly used for borders or rockeries. Persicifolia, in its many fine varieties, is questionable, making a mass of fine stolons that rot out easily with thawing and freezing spells. Pyramidalis is the majestic one of the family, growing five to six feet high; to have such, plants, are usually grown in large pots in a lath house.

Lilies are generally obtained from the west coast and Japan. Their success depends on location, well drained soil and omission of manure unless well incorporated into the soil for one season before planting.

Tulips, daffodils, hyacinths and a host of other bulbs, while they are perennials used extensively in most gardens, are mostly propagated easier elsewhere; so let's not discuss them

The majority of the public thinks of perennials as being perpetual and are disappointed when they have losses. We must advise the buyer of the habits of the different kinds stressing the fact that all strong growers must have a deep mellow soil; that new eyes, buds, rhizomes or stolons are grown each season to flower the following year, and that they must be given space to develop and given plant food regularly to survive.

Whether you sell by catalog or from your nursery, sales grounds, garden center or roadside stand, to have perennials available, someone must grow them—and that is the nurseryman. Think it over as to what kind you want to grow and can grow; then produce stock that will be a pleasure to sell and give satisfaction to the buyer.

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Made in three widths
as follows:

U-6-1% x 6 ins., lineal foot45c

U-8-1% x 8 ins., lineal foot55c

U-10-1% x 10 ins., lineal foot70c



Pept. A, Yoho Bldg. Youngstown, Ohio

YOHO & HOOKER

"We Ship the same Day"



To Our Many Patrons

of this past season, we wish to express our sincere appreciation, and to all throughout the trade, our best wishes for a very

Merry Christmas

and a

Prosperous New Year

D. HILL NURSERY COMPANY

Evergreen Specialists

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DUNDEE, ILLINOIS